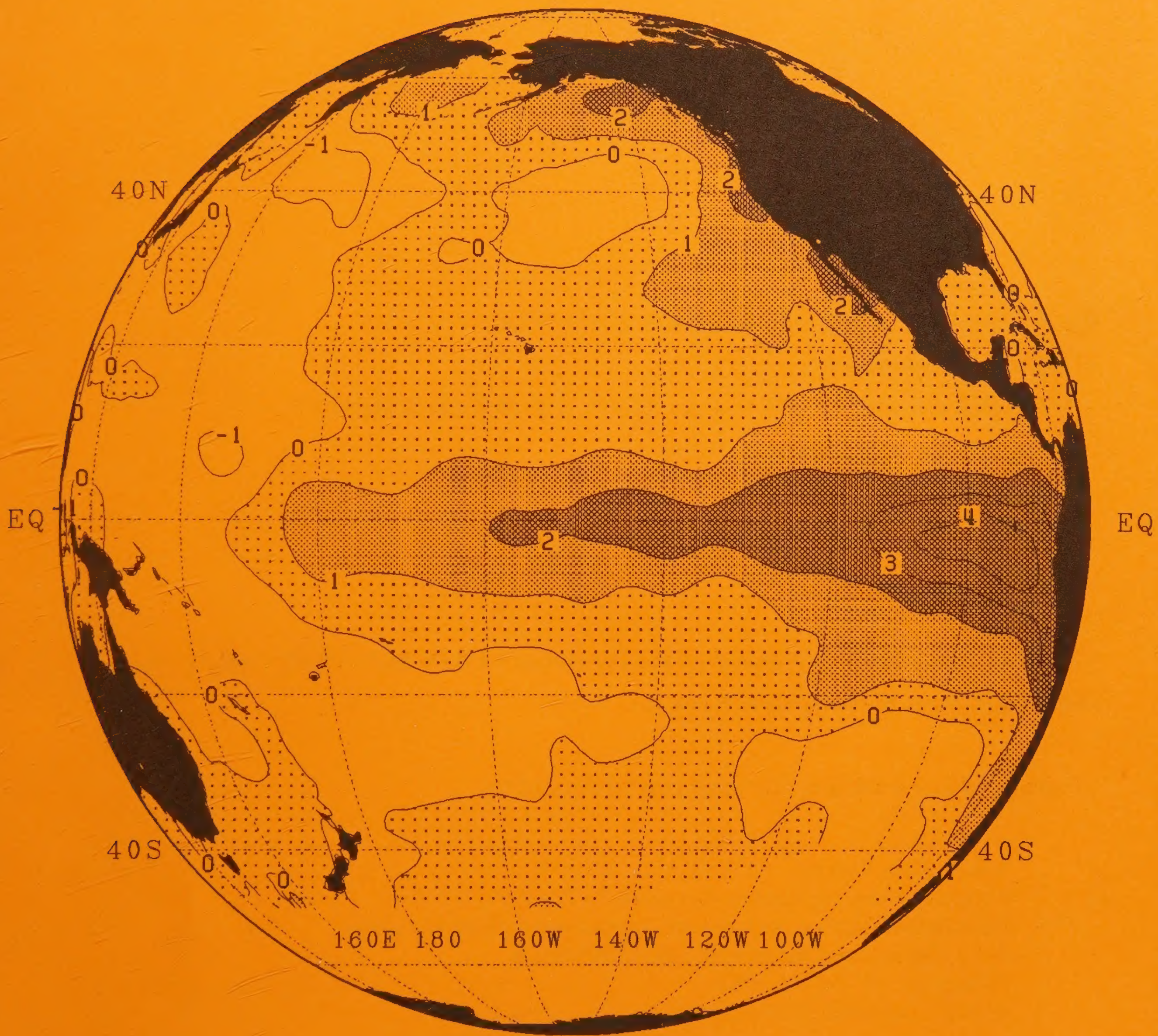
気 象 庁 海 洋 月 報

Monthly Ocean Report

September 1997 (No. 57)



Climate and Marine Department
Japan Meteorological Agency

気象庁 気候・海洋気象部

平成9年9月

気象庁海洋月報は、気象庁 気候･海洋気象部 海洋課で作成されています。

本月報に関する問い合わせは、

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Monthly Ocean Report is prepared by the Oceanographical Division, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、1997年9月の太平洋の月平均海面水温偏差図です。

陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for September 1997 in the Pacific Ocean.

Areas of positive anomalies are shaded.

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海況の特徴（１９９７年９月）

日本近海の海況

海面水温は，北海道南東方で平年より1℃以上低く，三陸から房総半島にかけての沿岸では平年より0.5℃以上低かった。一方，北海道の北西と千島列島周辺では平年より0.5℃以上高かった（第4図）。

黒潮は，九州から紀伊半島にかけて接岸した後，東に流れ，八丈島付近を経て房総半島沖を北東に流れていた。常磐沖の黒潮は,上・中旬には36゜N付近を東進し,下旬には34゜Nから37゜Nの間を蛇行していた（第9図）。

本州東方の親潮系の冷水は，沿岸の分枝は39.6゜N，142.7゜Eまで，沖合の分枝は39.3゜N，146.0゜Eまで，それぞれ達していた（第5図）。

太平洋の海況

太平洋赤道域の海面水温は，175゜E以東で平年より1℃以上，160゜W以東では2℃以上高かった。110゜W～85゜Wでは，+4℃以上の正偏差も見られた。エルニーニョ監視海域(4゜N～4゜S，150゜W～90゜W）の海面水温の平年偏差は+2.9℃となり（表１），先月（+3.1℃）に続き大きな正偏差となった。一方，西部の10゜N,170゜E及び130゜Eの赤道付近では-1℃以下の負偏差域が見られた。

北太平洋では，40゜Nに沿った負偏差は先月より弱まり，-1℃以下の負偏差域は160゜Eから日付変更線にかけてと140゜W付近で見られるのみとなった。一方，ベーリング海では＋１℃以上，アラスカ湾からカリフォルニア半島沖にかけては+2℃以上の正偏差が見られた（第16図)。

Highlights September 1997

Seas adjacent to Japan

SSTs were more than 1°C below normal southeast of Hokkaido and more than 0.5°C below normal along the coast from Sanriku to Boso Peninsula. SSTs were more than 0.5°C above normal northwest of Hokkaido and around Kuril Islands (Fig.4).

The Kuroshio flowed along the coasts from Kyushu to Kii Peninsula, then flowed eastward. After passing near Hachijo Island, it flowed NE-ward off Boso Peninsula. Off Joban, the Kuroshio flowed eastward during the first and second 10-day of September, and it took a meandering path between 34°N and 37°N in the last 10-day (Fig.9).

Coastal and off-coastal branches of the Oyashio cold water extended southward to 39.6°N,142.7°E and 39.3°N,146.0°E, respectively (Fig.5).

Pacific Ocean

In the equatorial Pacific, SSTs were more than 1°C above normal east of 175°E and more than 2°C above normal east of 160°W. Positive SST anomalies exceeding +4°C were observed between 110°W and 85°W along the equator. SST anomaly of the El Niño monitoring region (4°N-4°S,150°W-90°W) was +2.9°C (Table 1) maintaining the trend of significant large values in recent months. Negative anomalies exceeding -1°C were found in the region centered at 10°N,170°E and near 130°E at the equator.

In the North Pacific, the region of negative anomalies exceeding -1°C along 40°N have reduced to be found from 160°E to the dateline and near 140°W. SSTs were more than 1°C above normal in the Bering Sea, and more than 2°C above normal from the Gulf of Alaska to off Baja California along the North American coast (Fig.16).

北西太平洋における二酸化炭素の観測
Observation of carbon dioxide in the western North Pacific

気象庁の海洋気象観測船「凌風丸」は，1997 年 5 月 30 日から 7 月 22 日にかけて，北西太平洋で二酸化炭素（CO_2）の観測を実施した。本州東方の海域における表面海水中の CO_2 濃度（分圧）は大気中に比べて低く，この海域は大気の CO_2 の吸収域であった。吸収の度合いを示す海洋と大気の CO_2 の濃度差は最も大きいところ（43°N, 153°E）で 120 μ atm であり，この値は 1989 年に始まった北西太平洋における凌風丸による CO_2 観測の中で最も大きな濃度差であった。

The Japan Meteorological Agency (JMA) made observations of carbon dioxide (CO_2) in the western North Pacific on board the R/V *Ryofu Maru* from May 30 to July 22, 1997. According to these observations, the CO_2 concentration (partial pressure) in the sea surface water east of Japan was much lower than that in the overlying atmosphere, implying that atmospheric CO_2 was being absorbed into the ocean in this region. The amplitude of the CO_2 concentration difference between that in the sea surface water and the overlying atmosphere indicates the rate of the CO_2 exchange through the sea surface. In this cruise the maximum difference was 120 μ atm observed at 43°N, 153°E ; the largest value observed since 1989 by the R/V *Ryofu Maru* in the western North Pacific.

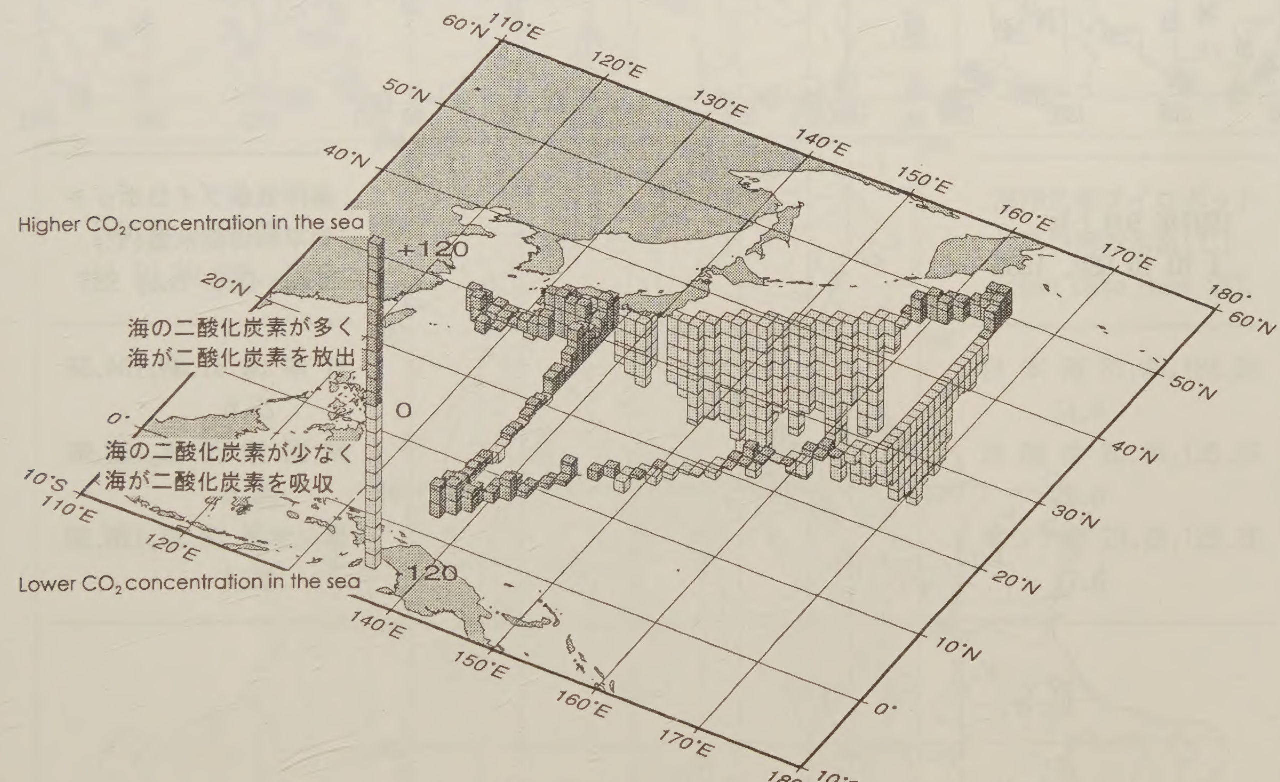
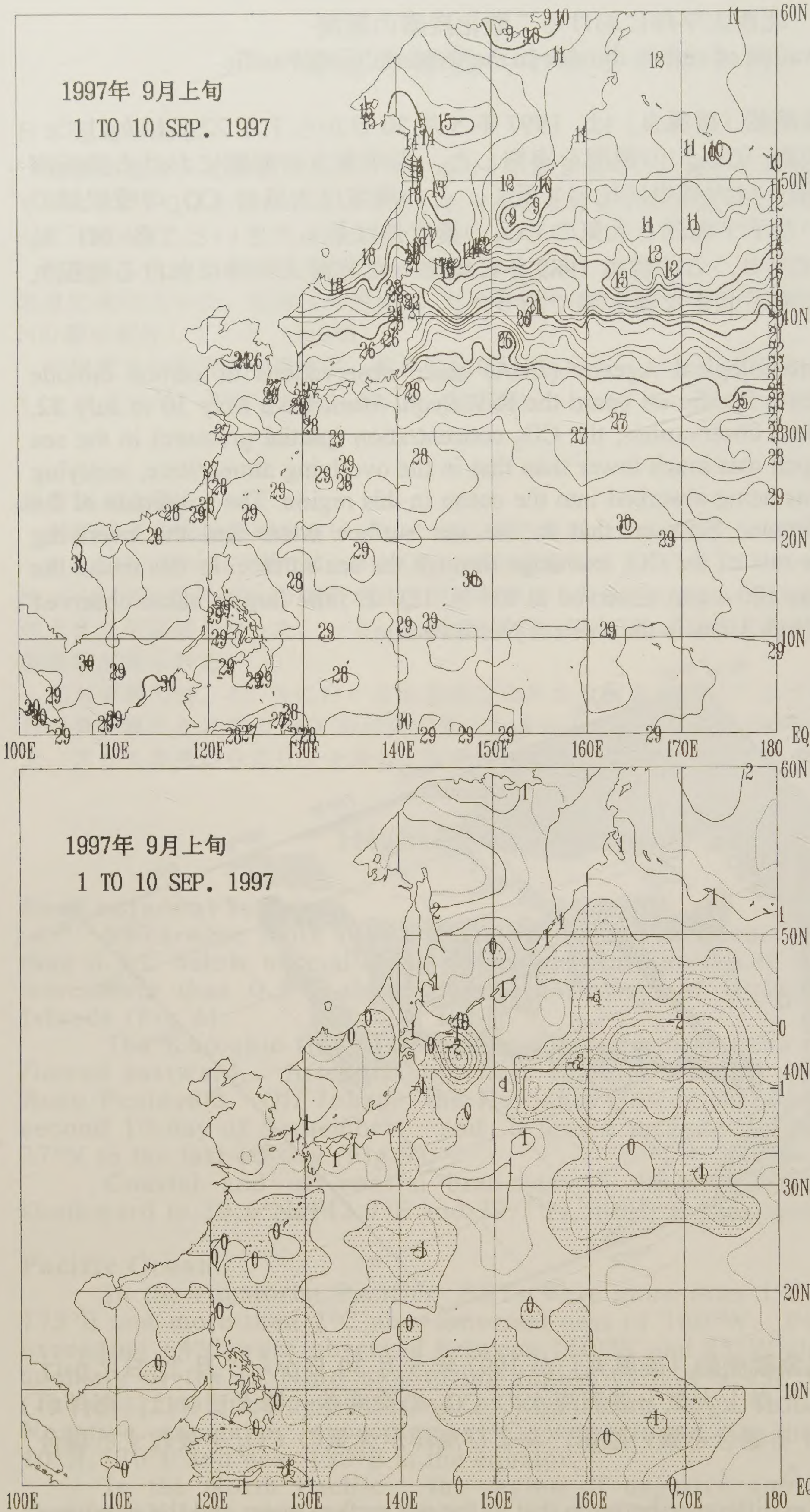


図 A　気象庁の海洋気象観測船「凌風丸」が 1997 年 5 月 30 日から 7 月 22 日にかけて北西太平洋で観測した洋上大気と表面海水の CO_2 の濃度差。棒グラフは，海洋から大気へ CO_2 を放出する場合を濃い陰影，および海洋が大気の CO_2 を吸収する場合を薄い陰影に示してある。

Fig.A　CO_2 concentration difference between that in the sea surface water and the overlying atmosphere in the western North Pacific observed by the R/V *Ryofu Maru* of JMA from May 30 to July 22, 1997. Darker-shaded upward pillars indicate that the ocean was emitting CO_2 to the atmosphere, and lighter-shaded downward pillars indicate absorption of atmospheric CO_2 by the ocean, respectively.



旬平均沿岸水温(℃)
Coastal Water Temperature

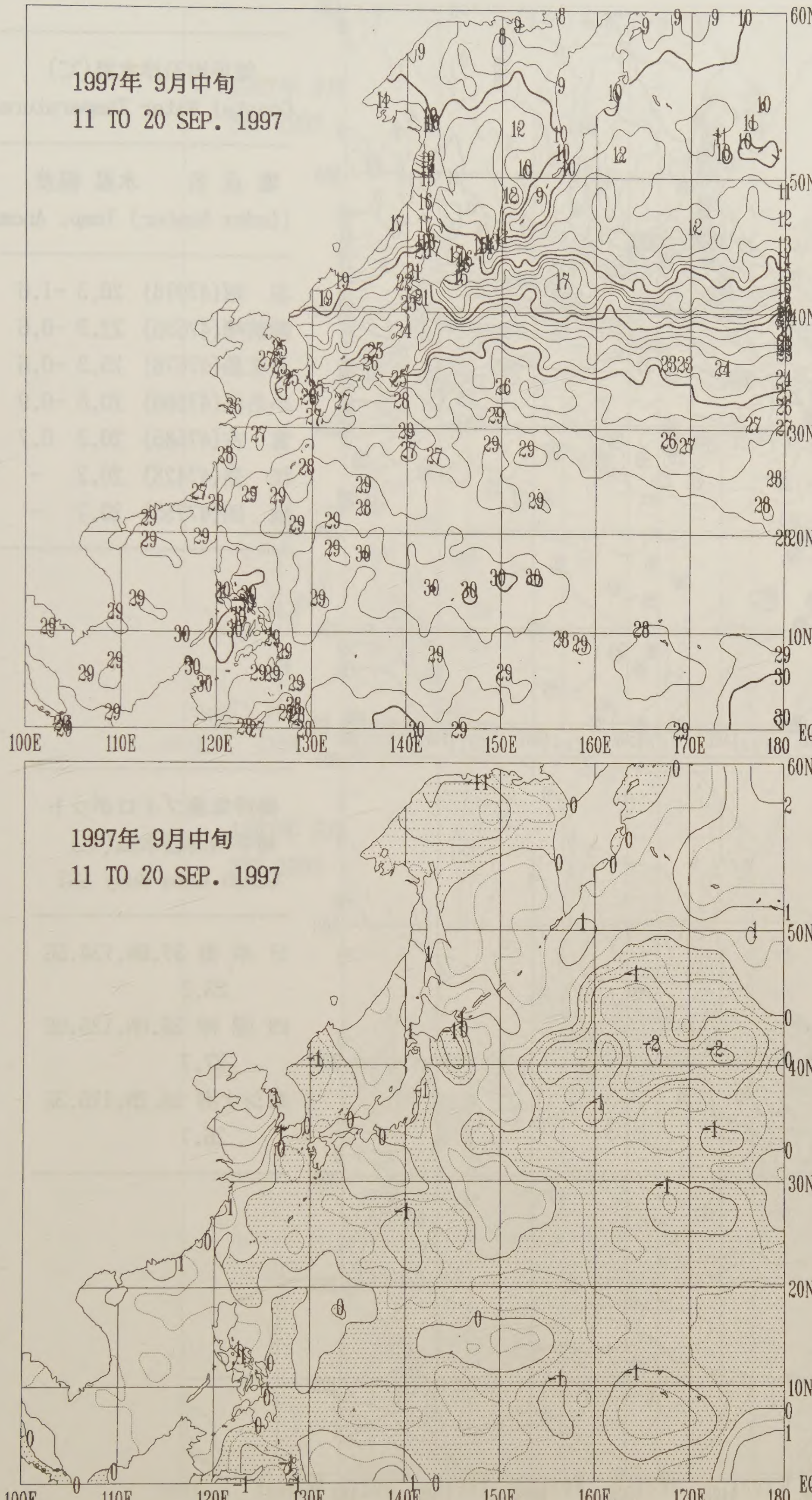
地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	28.4	-0.4
御前崎(47655)	26.1	0.3
八丈島(47678)	27.8	0.9
小名浜(47598)	22.2	-0.1
宮　古(47585)	21.1	1.1
江　差(47428)	24.5	-
浜　田(47755)	26.9	-

海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

日本海	37.9N,134.5E	25.6
四国沖	29.0N,135.0E	29.0
東シナ海	28.2N,126.3E	28.4

第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1997年 9月上旬)

Fig.1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in SEP 1997. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



旬平均沿岸水温(℃)
Coastal Water Temperature

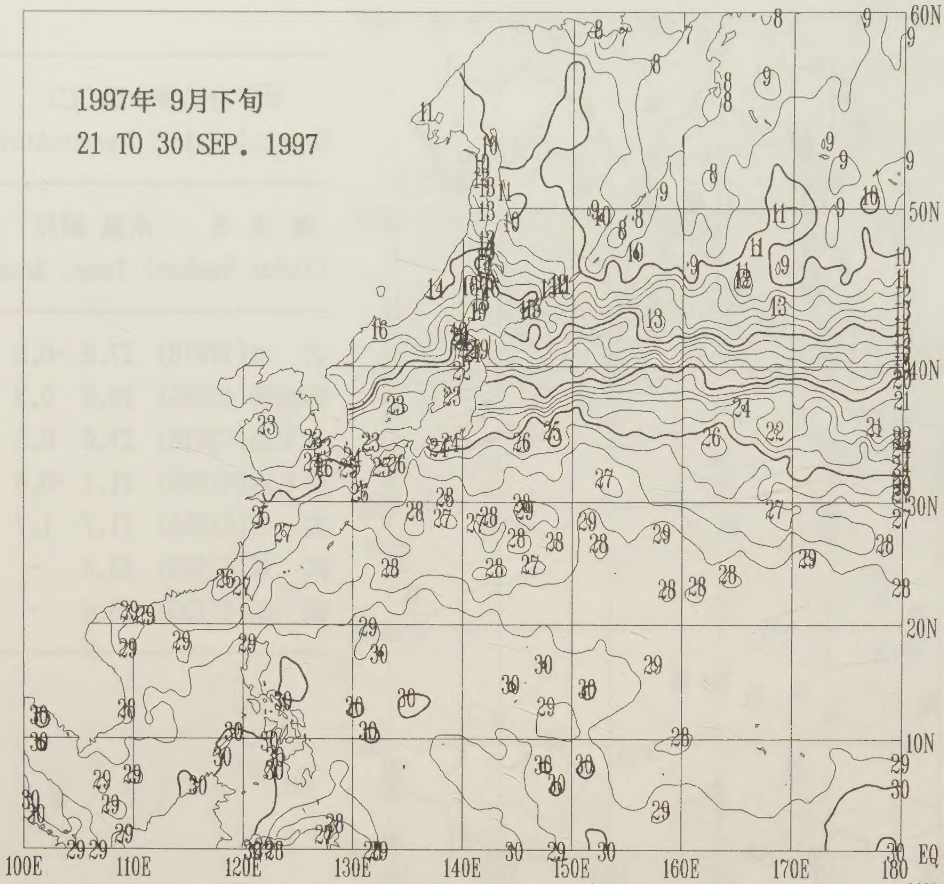
地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	27.9	-0.5
御前崎(47655)	25.0	0.3
八丈島(47678)	27.0	0.5
小名浜(47598)	21.1	-0.8
宮　古(47585)	21.7	1.7
江　差(47428)	23.0	-
浜　田(47755)	23.6	-

海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

日本海	37.9N,134.5E	24.0
四国沖	29.0N,135.0E	28.0
東シナ海	28.2N,126.3E	27.6

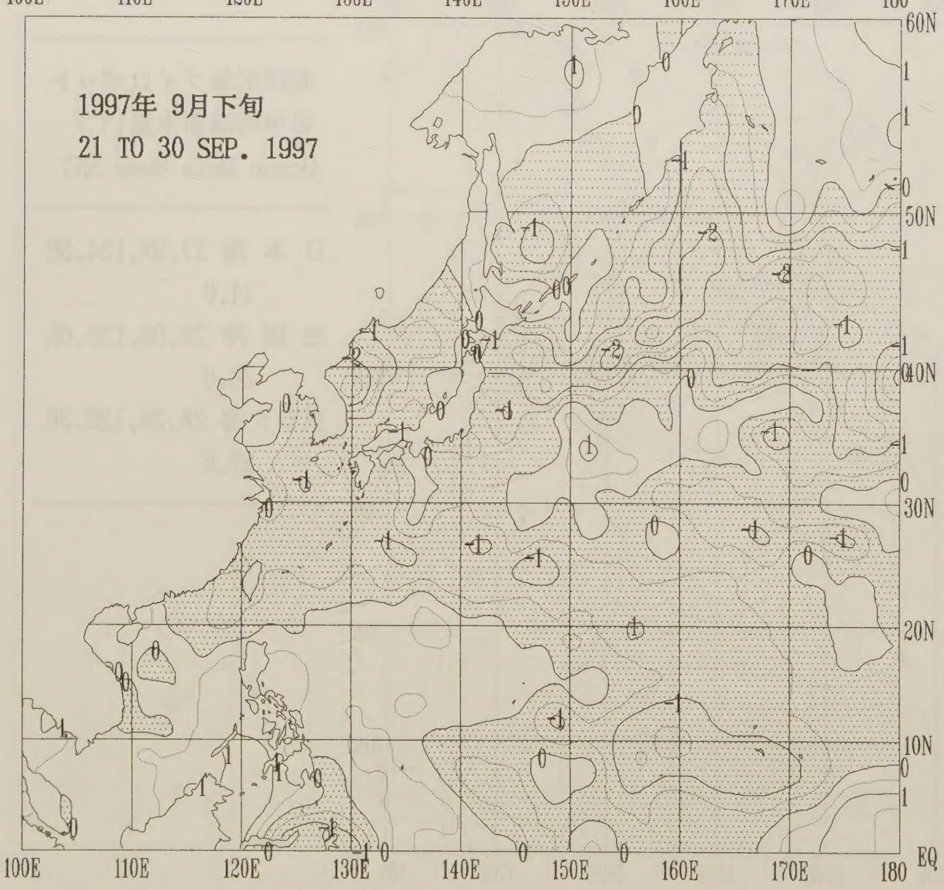
第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1997年 9月中旬)

Fig.2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in SEP 1997. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	26.3	-1.6
御前崎(47655)	22.9	-0.6
八丈島(47678)	25.3	-0.6
小名浜(47598)	20.6	-0.9
宮　古(47585)	20.3	0.7
江　差(47428)	20.2	-
浜　田(47755)	20.7	-

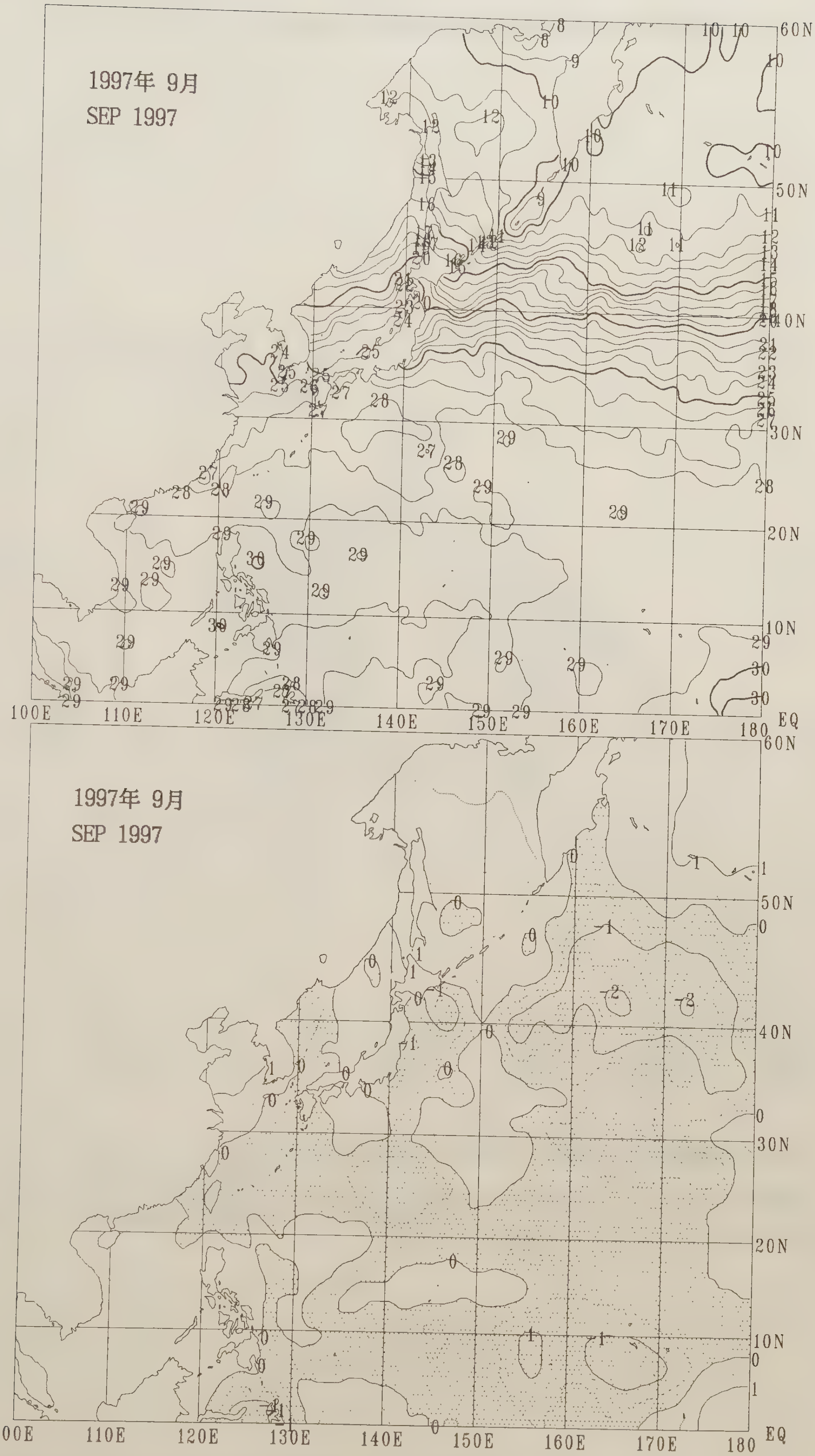


海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

日本海	37.9N,134.5E	23.2
四国沖	29.0N,135.0E	27.7
東シナ海	28.2N,126.3E	26.7

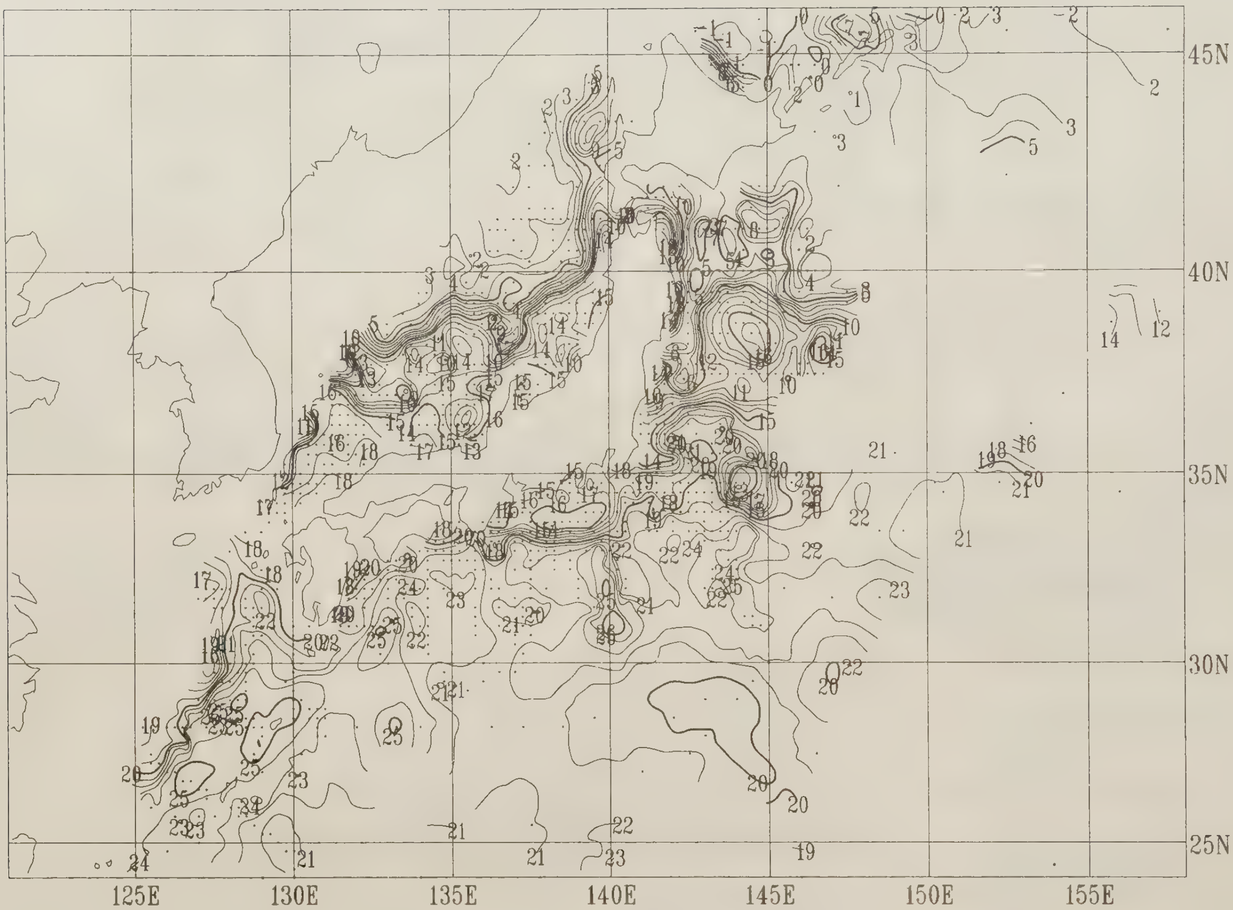
第3図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1997年 9月下旬)

Fig.3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in SEP 1997. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



第4図 北西太平洋月平均海面水温図(上)及び偏差図(下)(1997年 9月)

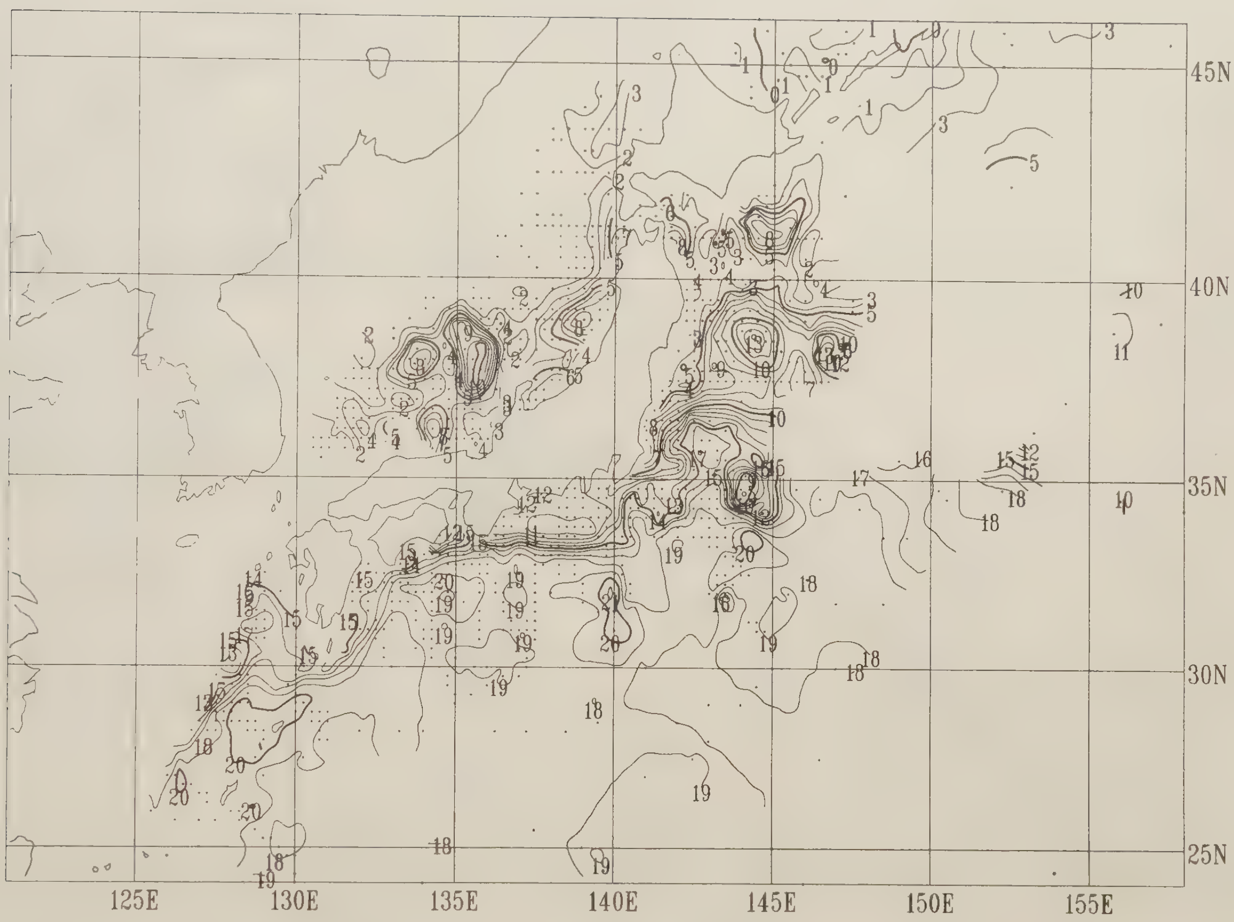
Fig.4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for SEP 1997. Anomalies are computed from the JMA climatology (1961-1990). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



第5図　日本近海表層水温図(深さ100m) (1997年 9月)

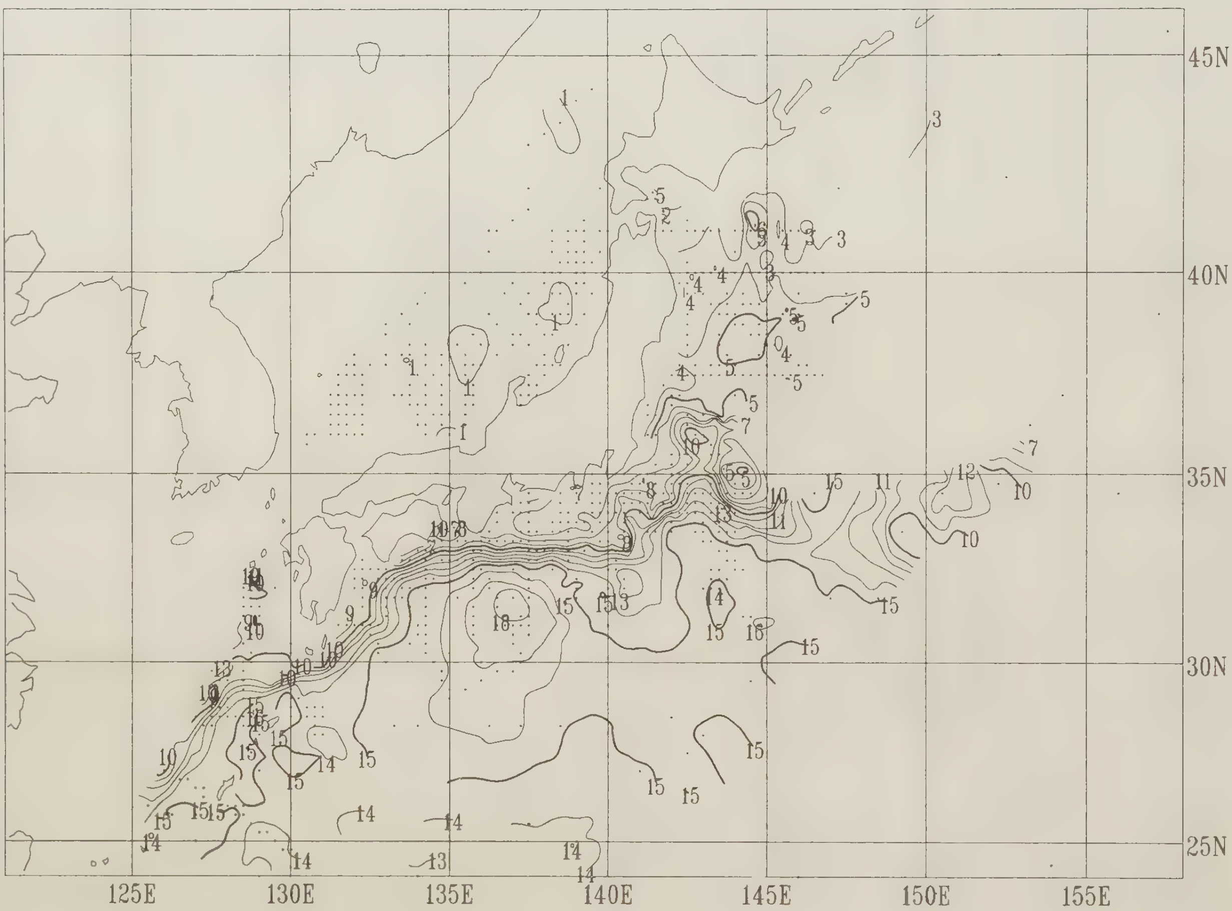
Fig.5 Subsurface (100m) temperatures in the seas adjacent to Japan for SEP 1997. Contour interval is 1°C. Observation points are denoted by dots.

200m Temperatures in the Seas Adjacent to Japan



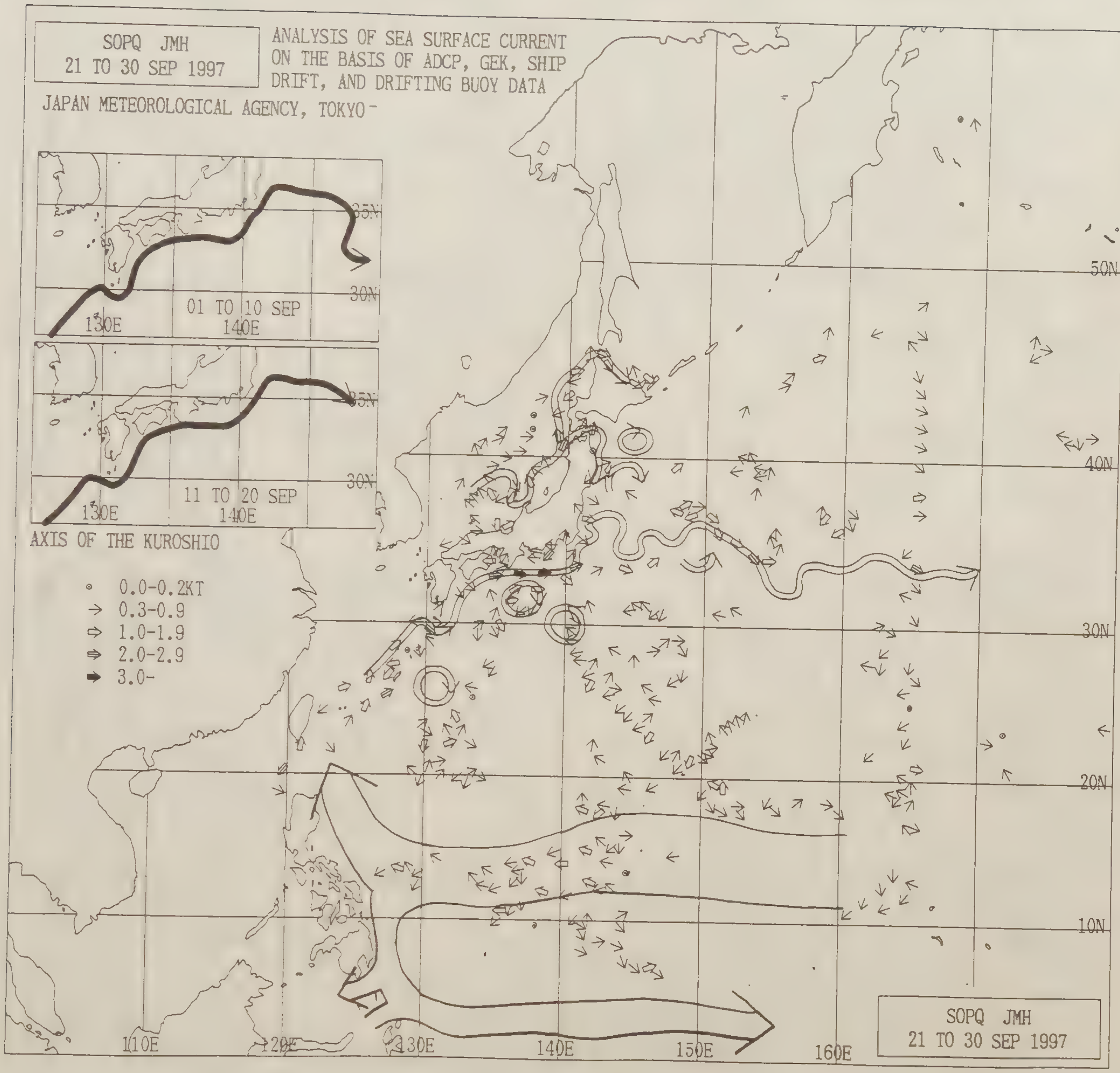
第6図　日本近海表層水温図(深さ200m) (1997年 9月)

Fig.6 Subsurface (200m) temperatures in the seas adjacent to Japan for SEP 1997. Contour interval is 1°C. Observation points are denoted by dots.



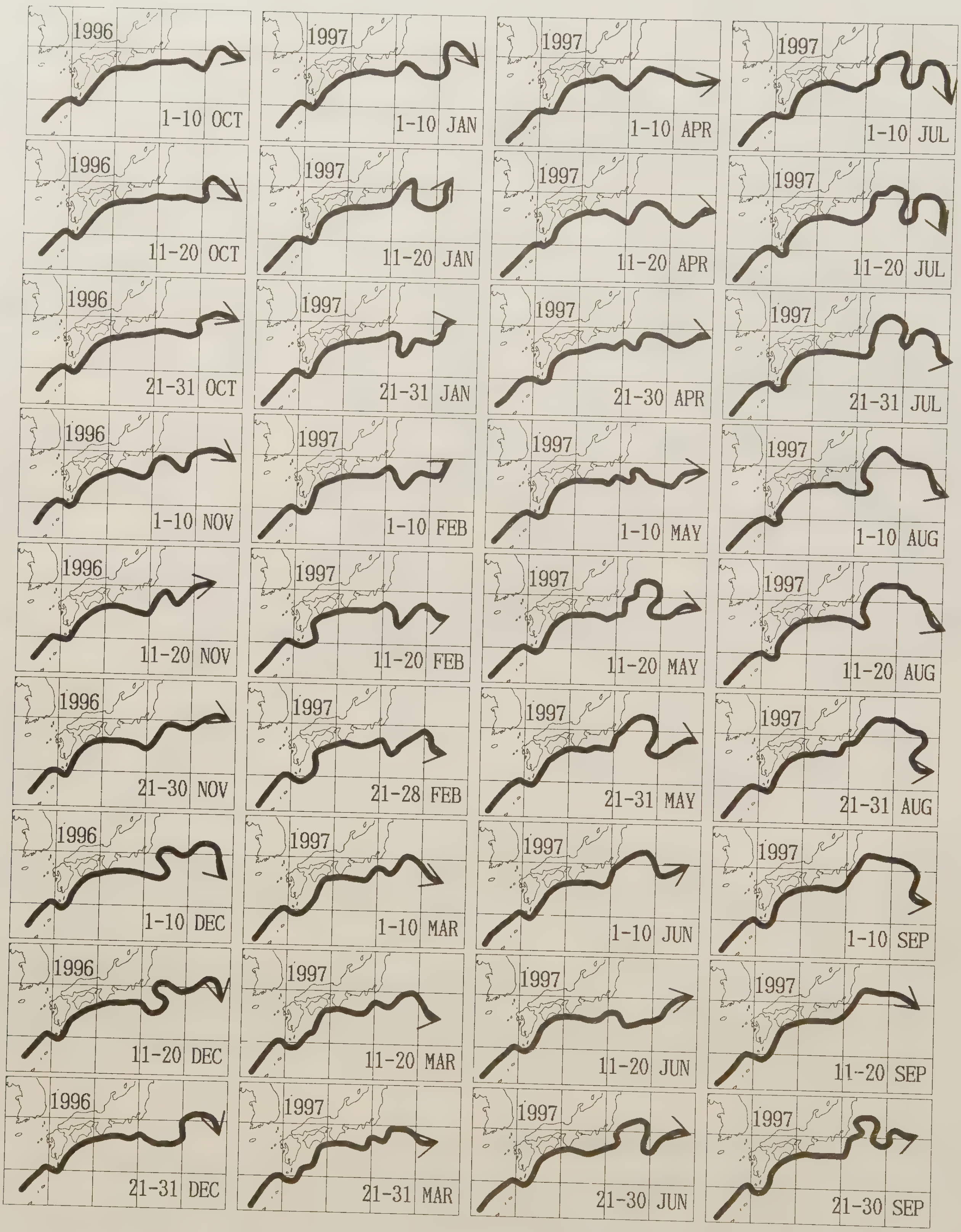
第7図　日本近海表層水温図(深さ400m)（1997年 9月）

Fig.7 Subsurface (400m) temperatures in the seas adjacent to Japan for SEP 1997. Contour interval is 1°C. Observation points are denoted by dots.



第8図　北西太平洋海流図 (1997年 9月下旬)

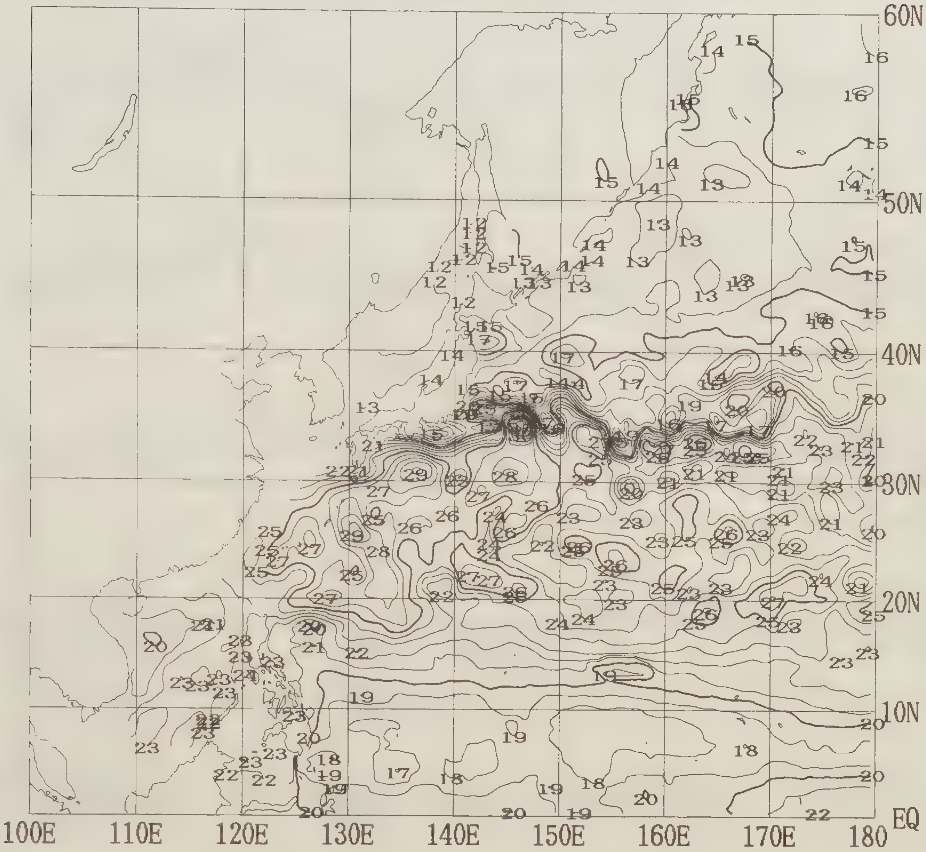
Fig.8 Analysis of the sea surface current in the western North Pacific for the 3rd ten-day period in SEP 1997. Small arrows indicate in situ observations. Major currents such as the Kuroshio and the North Equatorial Current are denoted by larger open arrows.



第9図 旬別黒潮流軸図

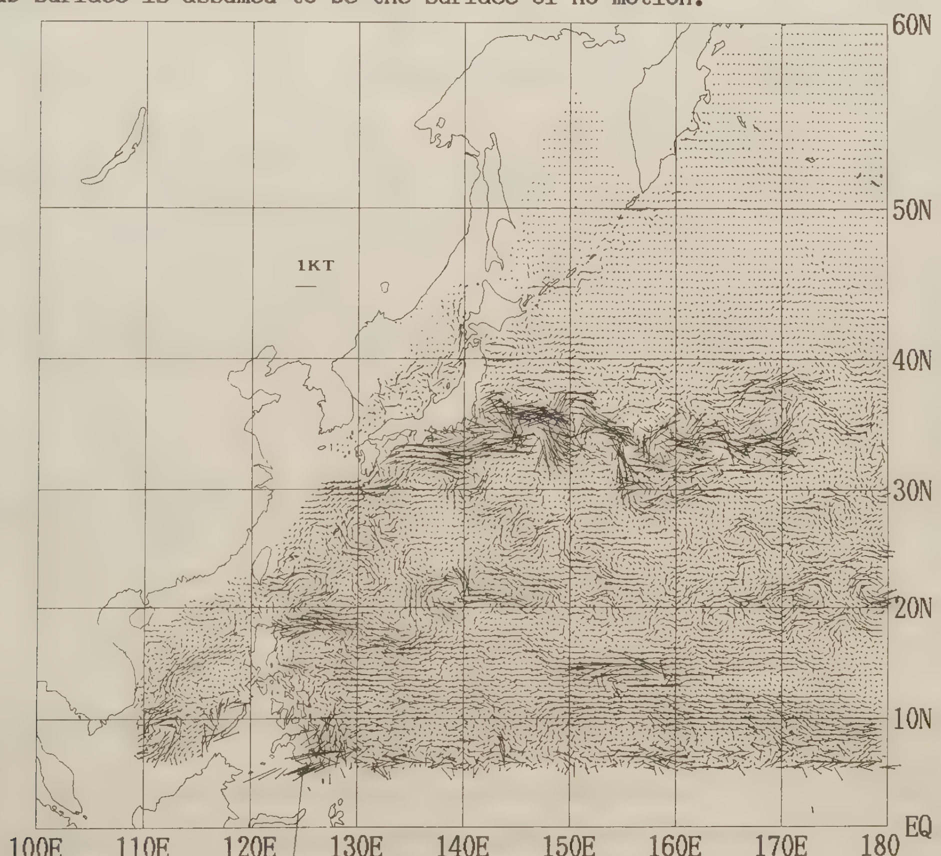
Fig.9 Location of the Kuroshio axis

Sea surface dynamic heights and current distribution



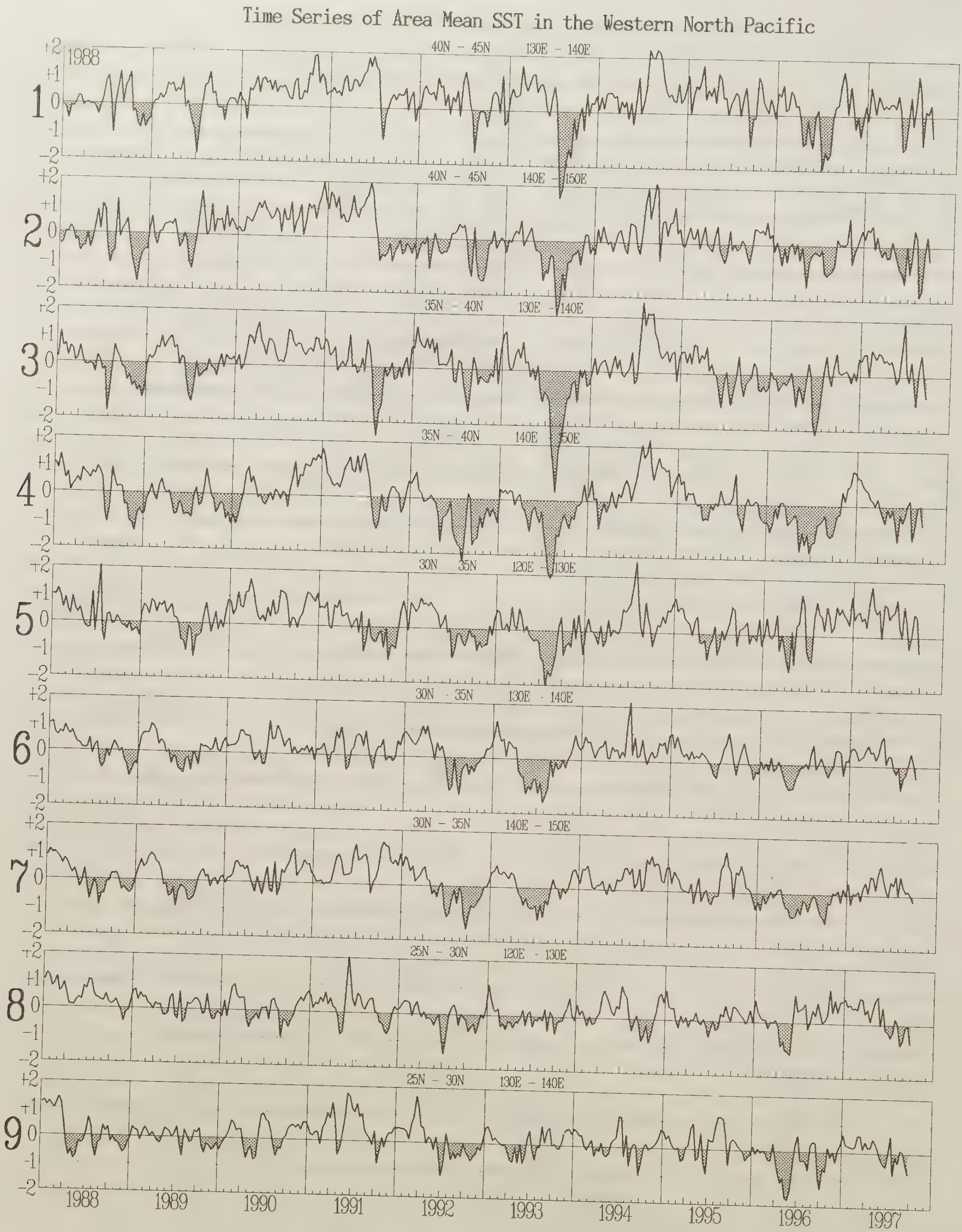
第10図 北西太平洋力学的海面高度分布図(1997年 9月14日)

Fig.10 Sea surface dynamic heights (10cm) in the western North Pacific derived from the altimeter data of TOPEX/POSEIDON (SEP 14, 1997).
1500db surface is assumed to be the surface of no motion.



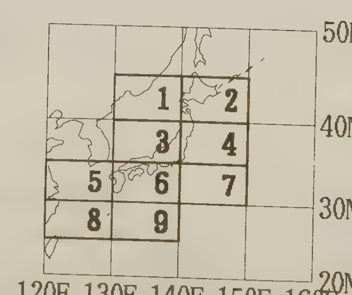
第11図 北西太平洋海流ベクトル図(1997年 9月14日)

Fig.11 Sea surface current vectors in the western North Pacific (SEP 14, 1997).
Vectors are derived from the sea surface dynamic heights from TOPEX/POSEIDON and subsurface temperature distribution assuming the geostrophic relation.

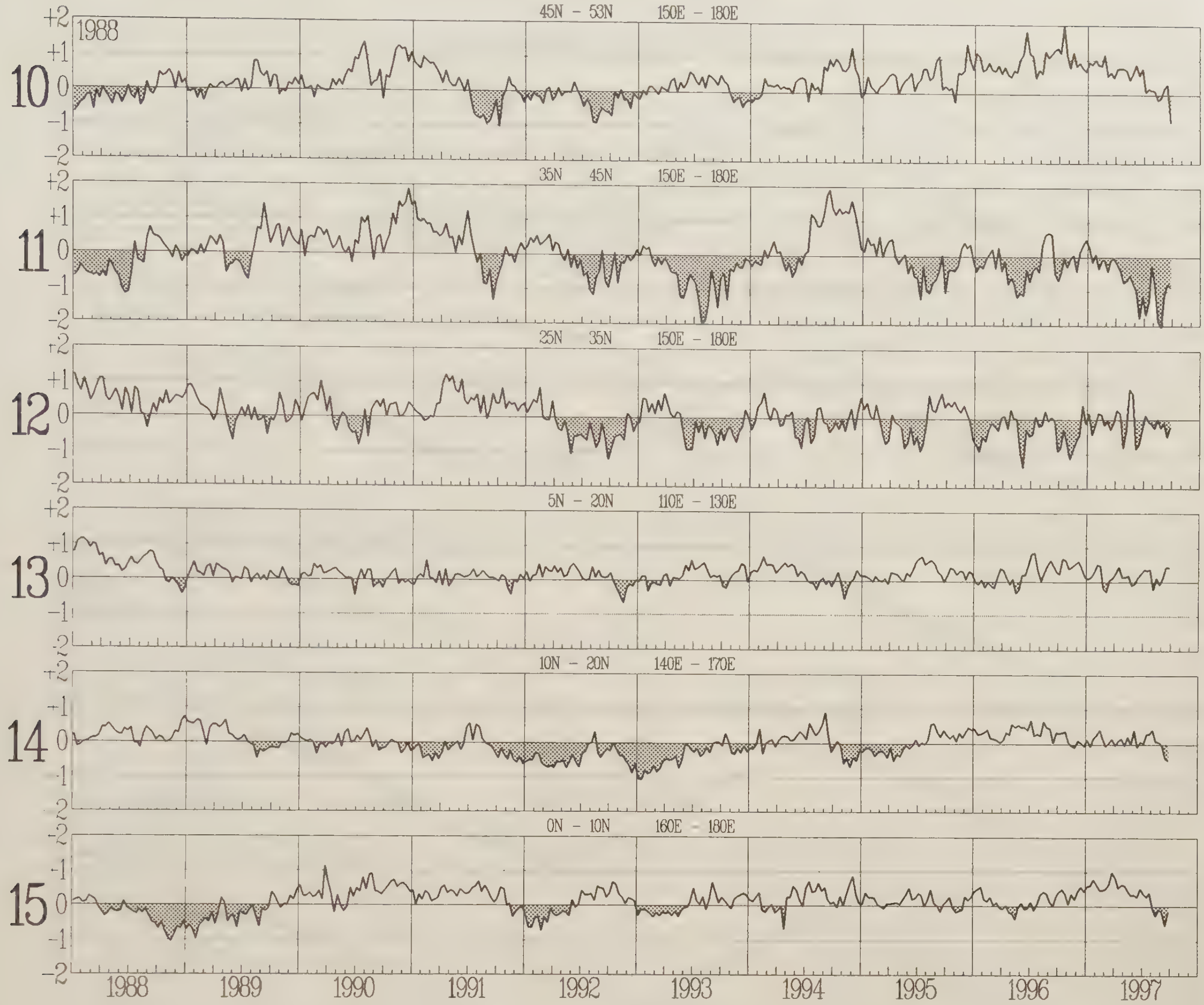


第12図　海域別旬平均海面水温平年偏差時系列図

Fig.12 Time series of the ten-day mean sea surface temperature anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1961-90).

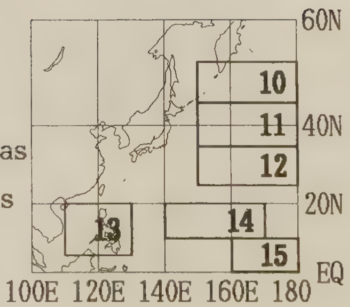


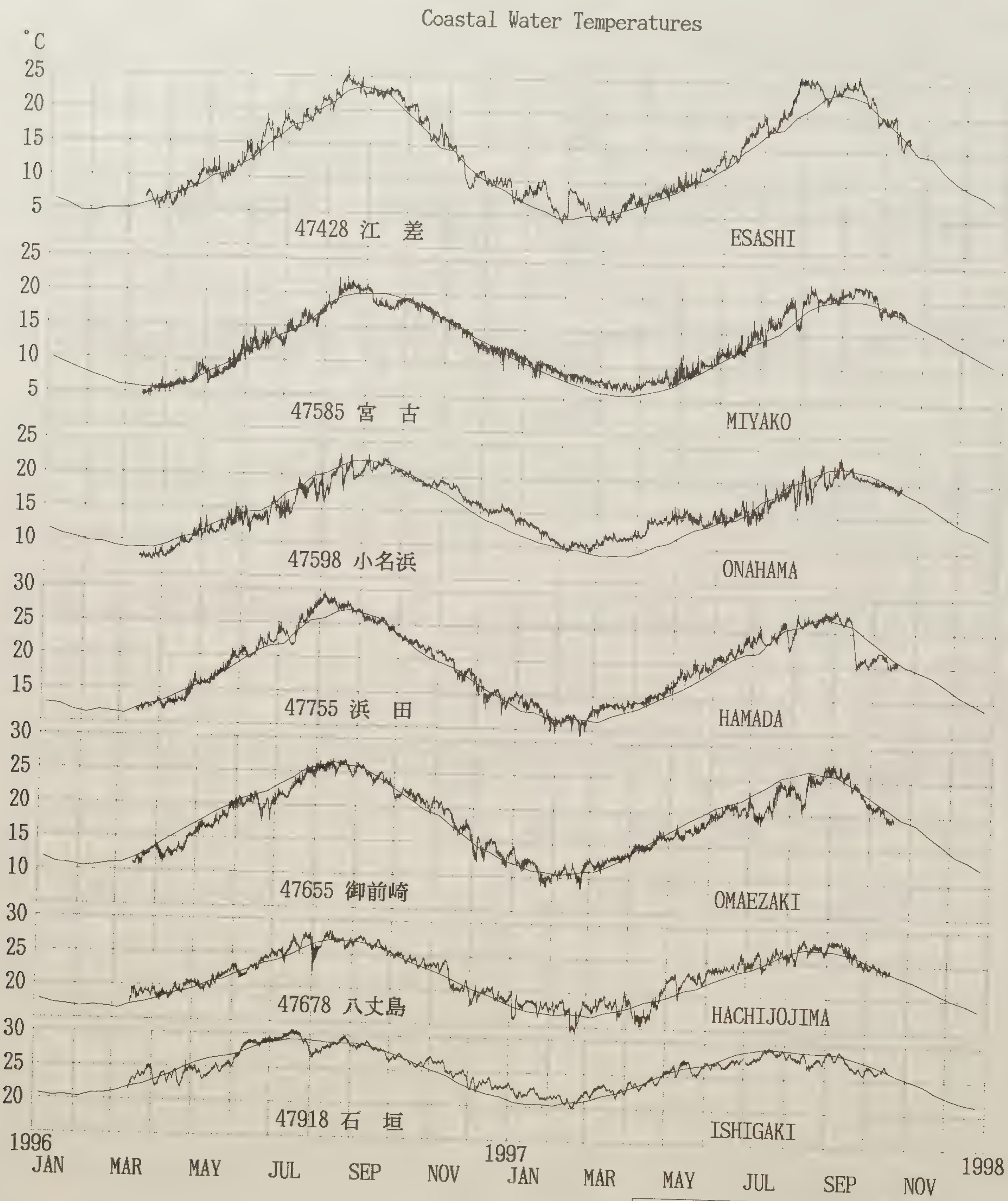
Time Series of Area Mean SST in the Western North Pacific

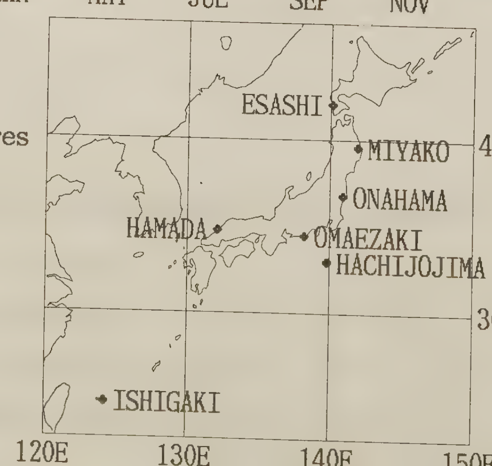


第12図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig.12 (continue) Time series of the ten-day mean sea surface temperature anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1961-90).



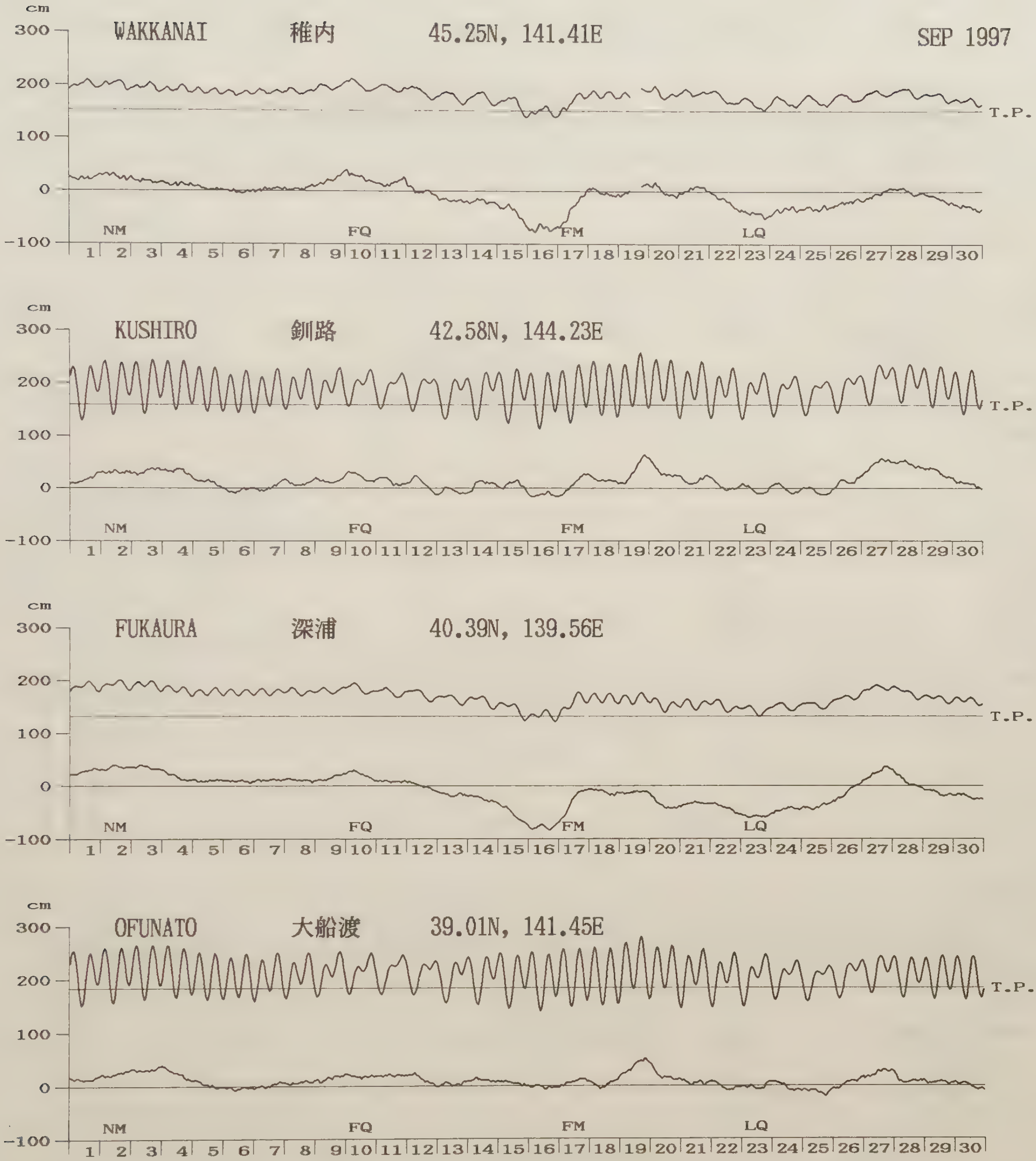


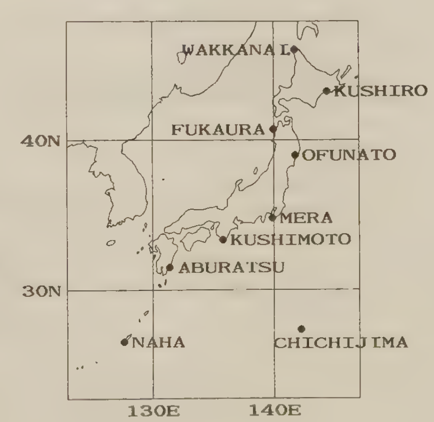


第13図 沿岸水温時系列図

Fig.13 Time series of hourly coastal water temperatures (°C) measured at 7 coastal stations of the JMA shown in the right panel.
Thin lines show ten-day mean climatology.

Time Series of Sea Level

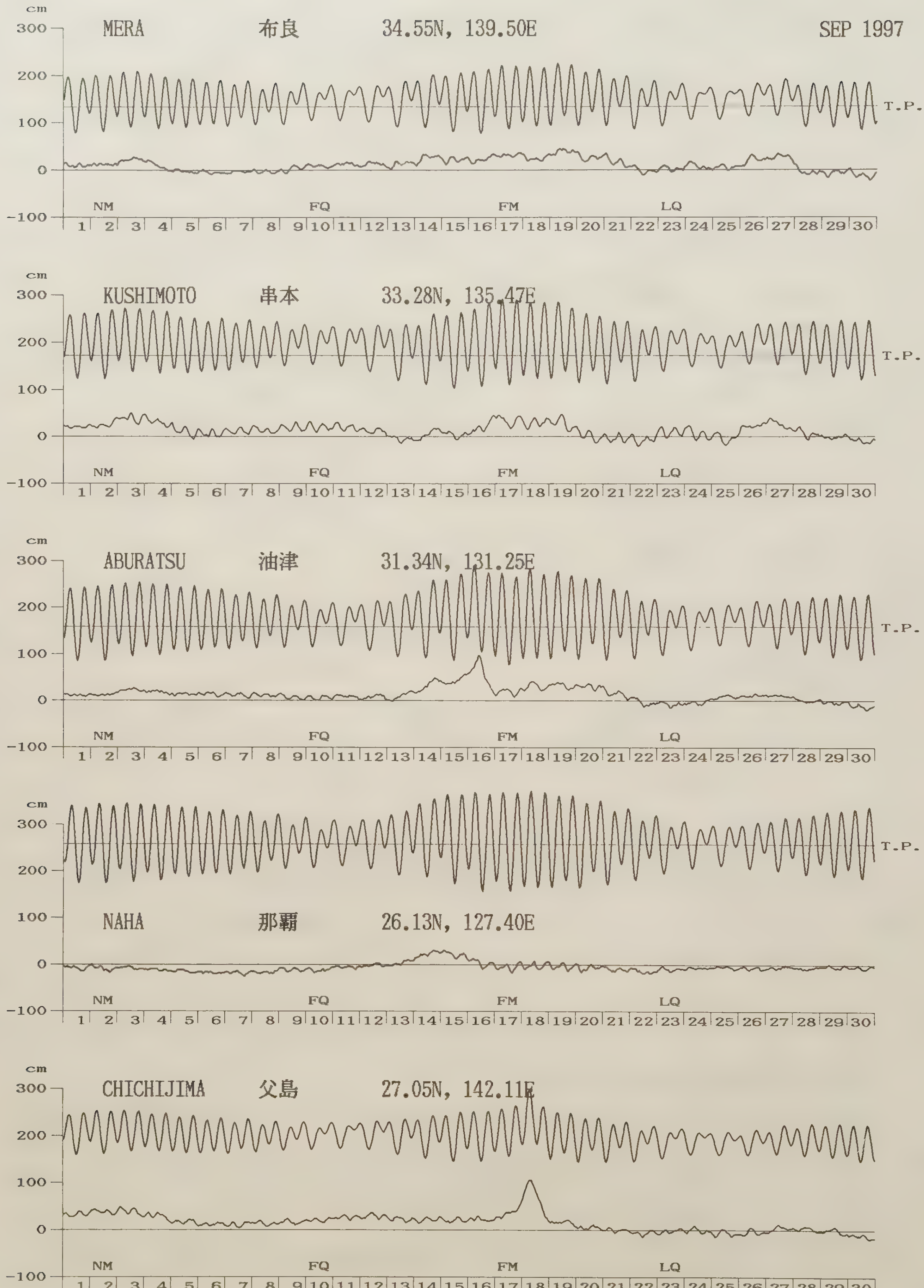




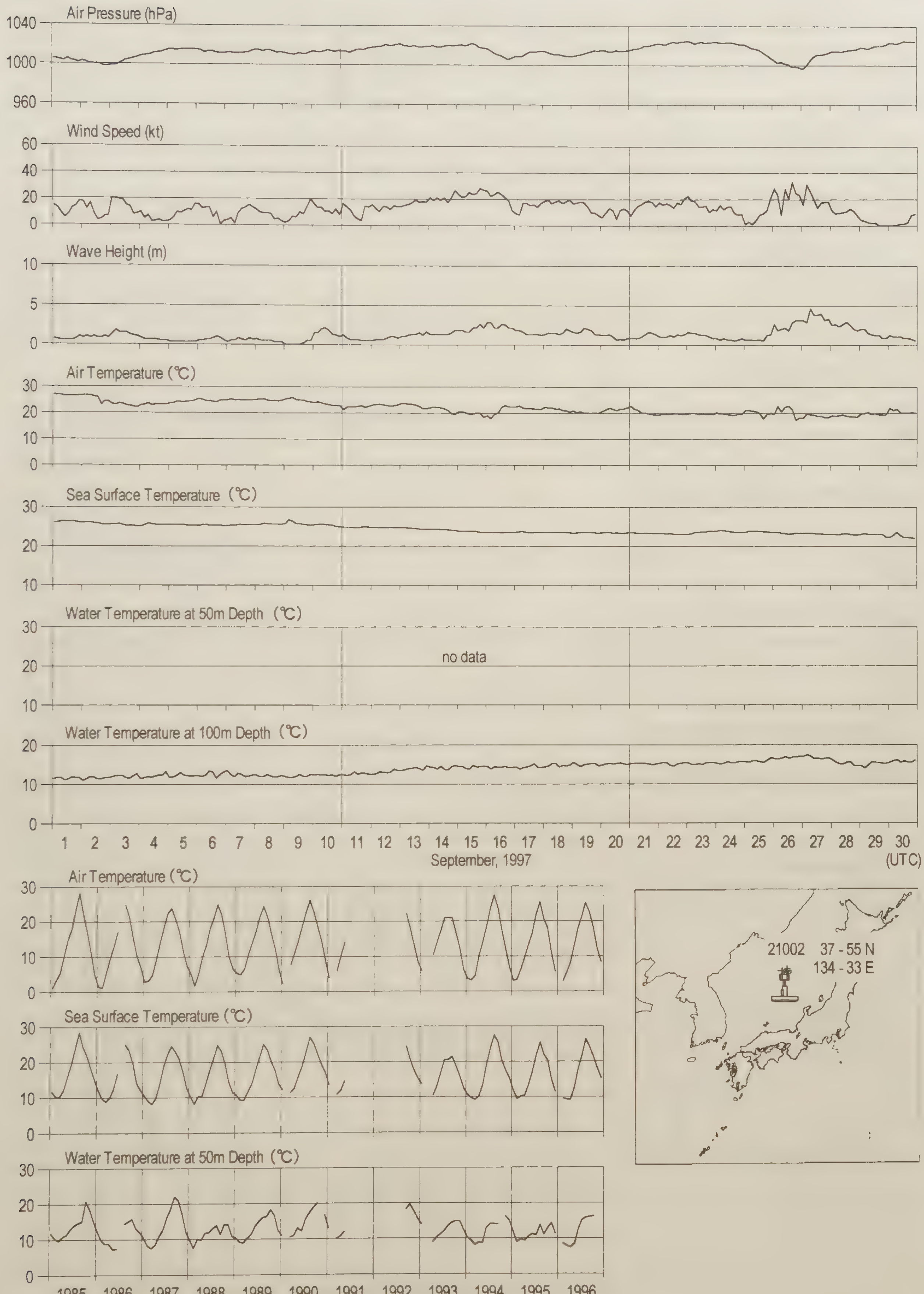
第14図 沿岸潮位時系列図（1997年 9月）

Fig.14 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are removed from raw data.
Sea level anomalies are two times values of the differences between the observations and the predicted astronominal tide.
FM: full moon, FQ: first quarter
NM: new moon, LQ: last quarter
T.P.: Mean sea level of Tokyo Bay (Tokyo Peil)

Time series of Sea Level

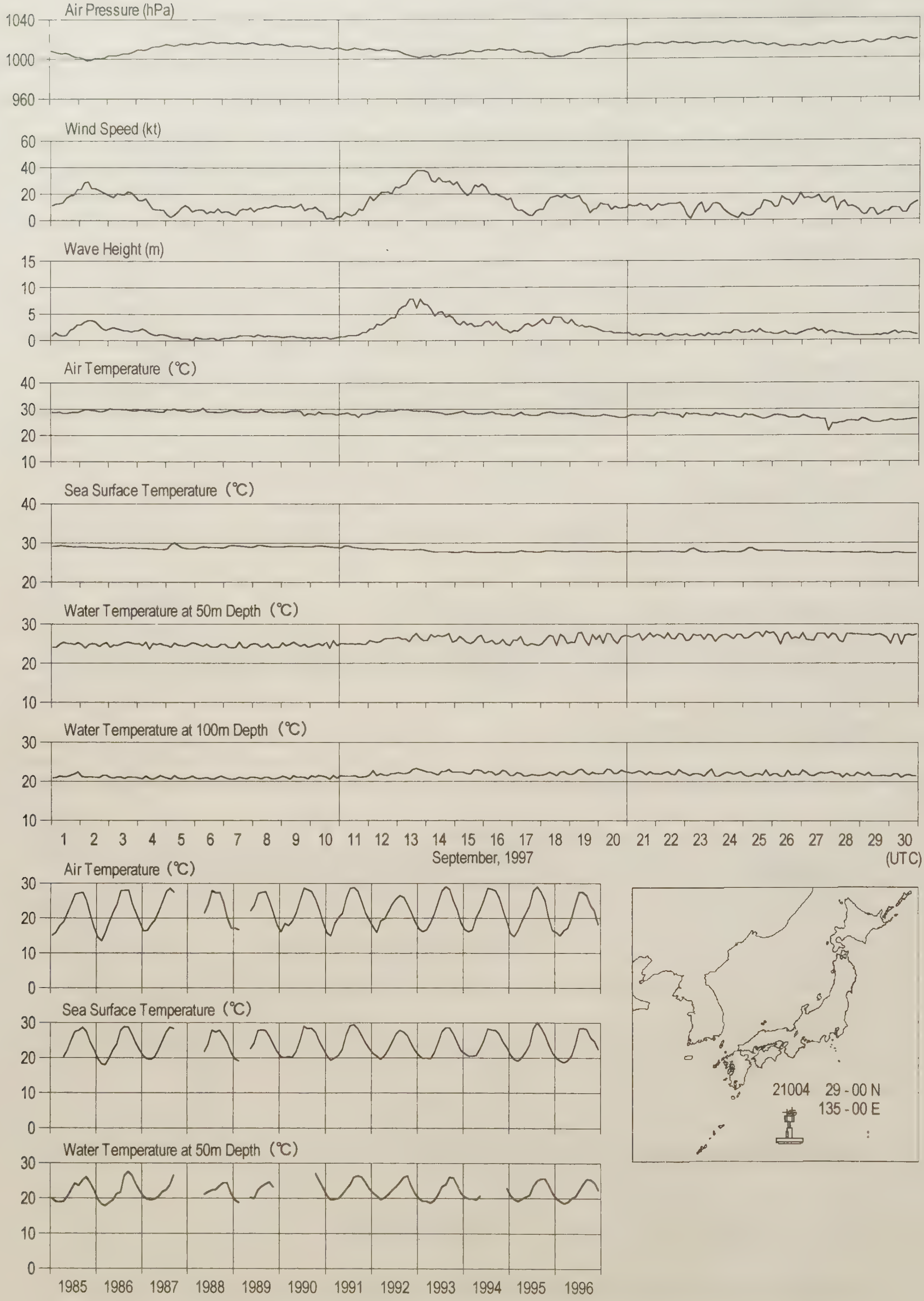


第14図 つづき
Fig.14 continue



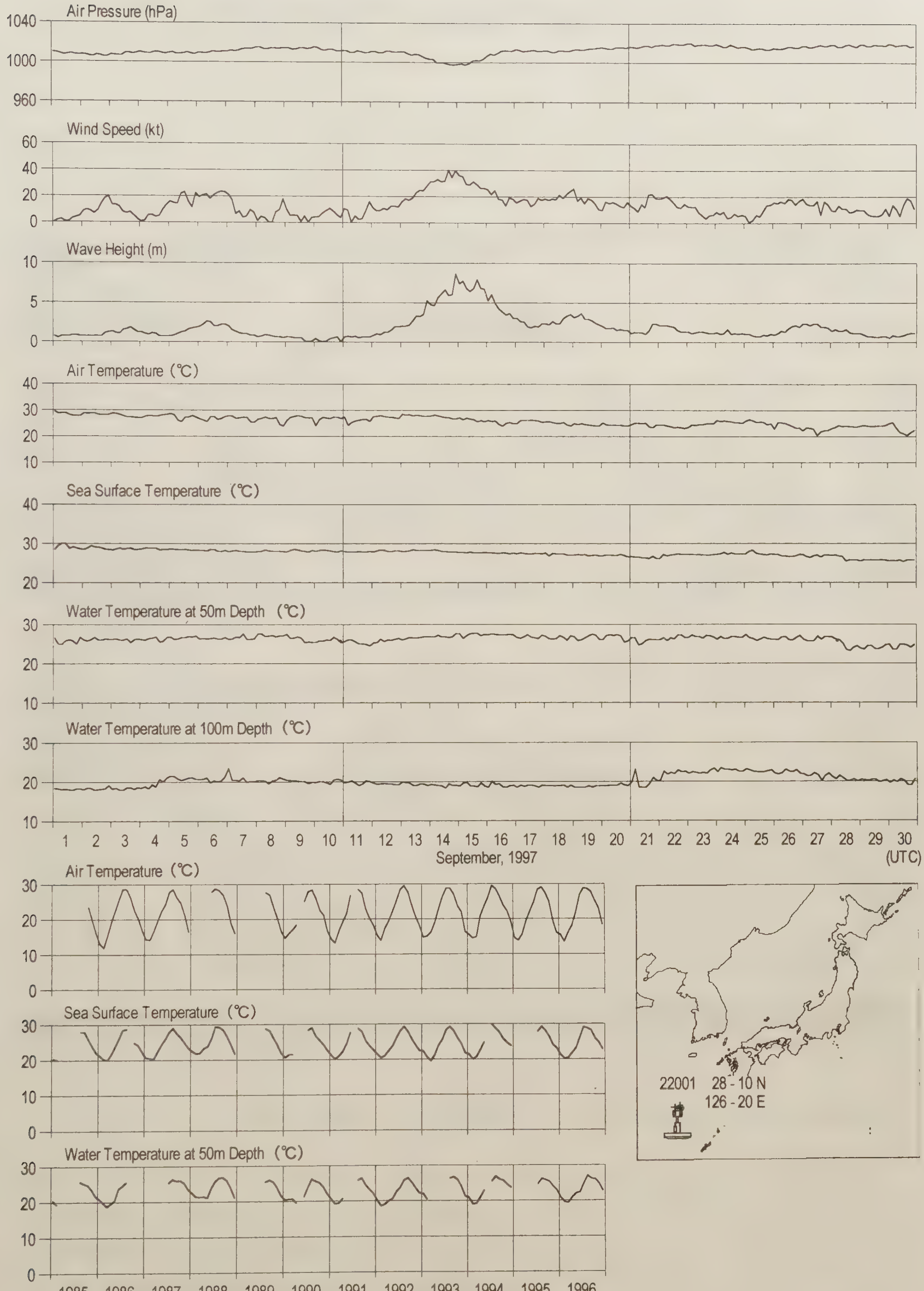
第15図　海洋気象ブイロボットによる観測要素の時系列図（日本海：21002）
上段は３時間毎の観測値を、下段は月平均値を示す。

Fig. 15　Time series of JMA buoy observation in the Japan Sea (WMO ID No. 21002). The upper panel shows three hourly observation and the lower panel shows the monthly mean data.



第15図　海洋気象ブイロボットによる観測要素の時系列図（四国沖：21004）
上段は３時間毎の観測値を、下段は月平均値を示す。

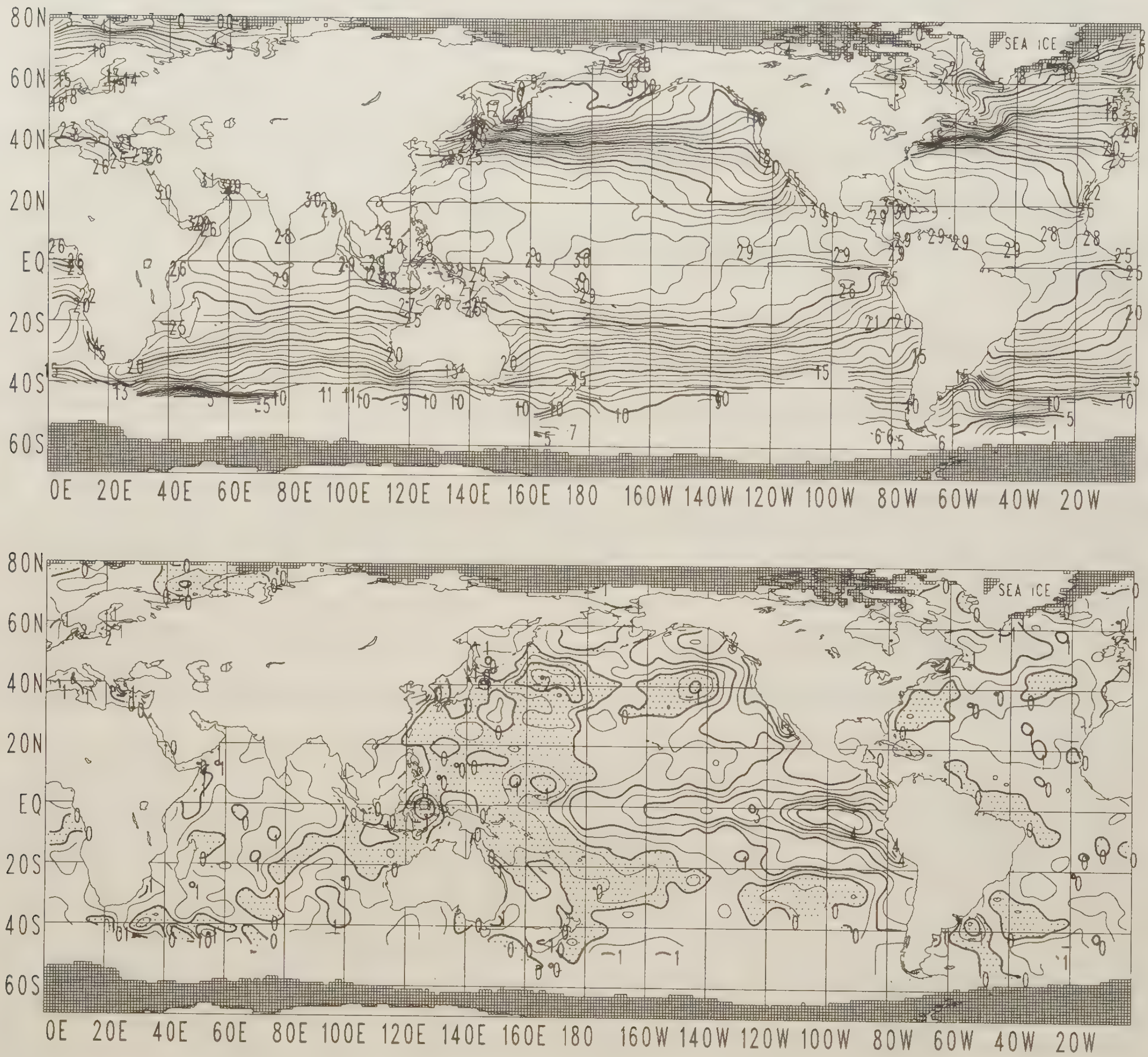
Fig. 15　Time series of JMA buoy observation south of Shikoku (WMO ID No. 21004). The upper panel shows three hourly observation and the lower panel shows the monthly mean data.



第15図　海洋気象ブイロボットによる観測要素の時系列図（東シナ海：22001）
上段は３時間毎の観測値を、下段は月平均値を示す。

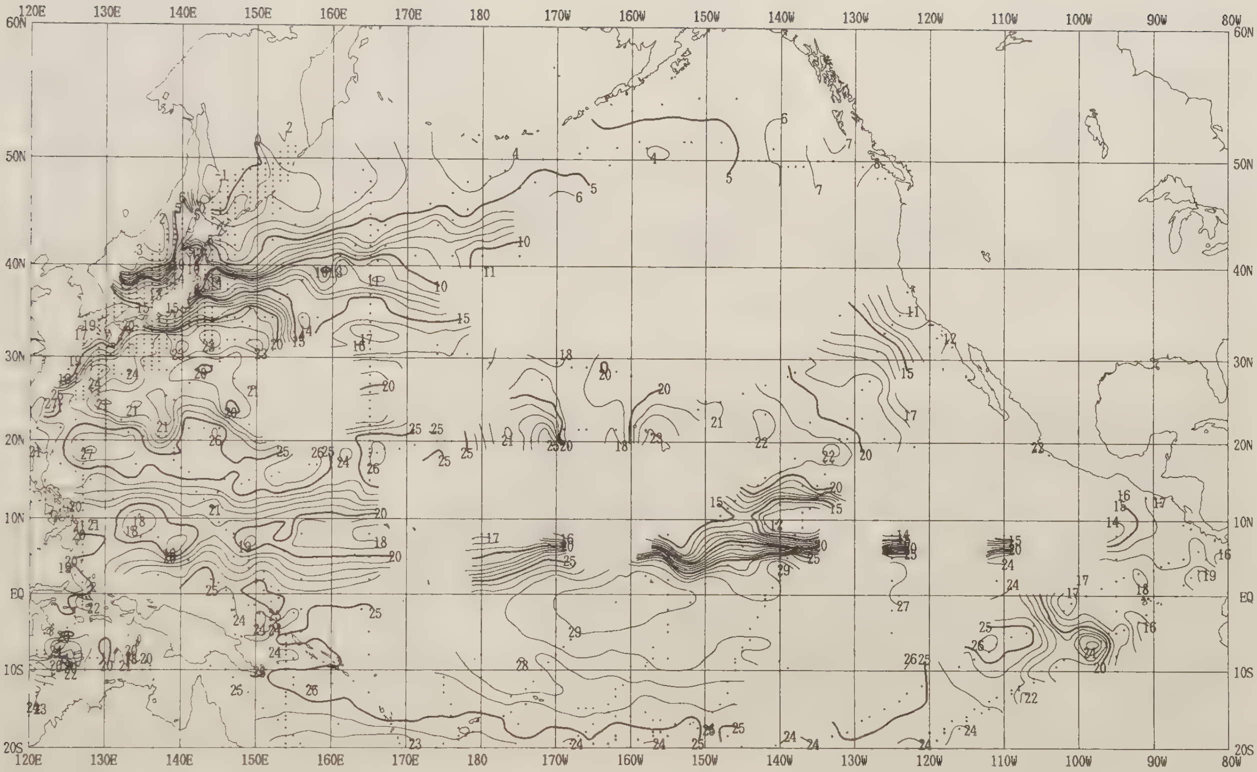
Fig. 15　Time series of JMA buoy observation in the East China Sea (WMO ID No. 22001).
The upper panel shows three hourly observation and the lower panel shows.
the monthly mean data.

SST & Anomalies in the Global Ocean



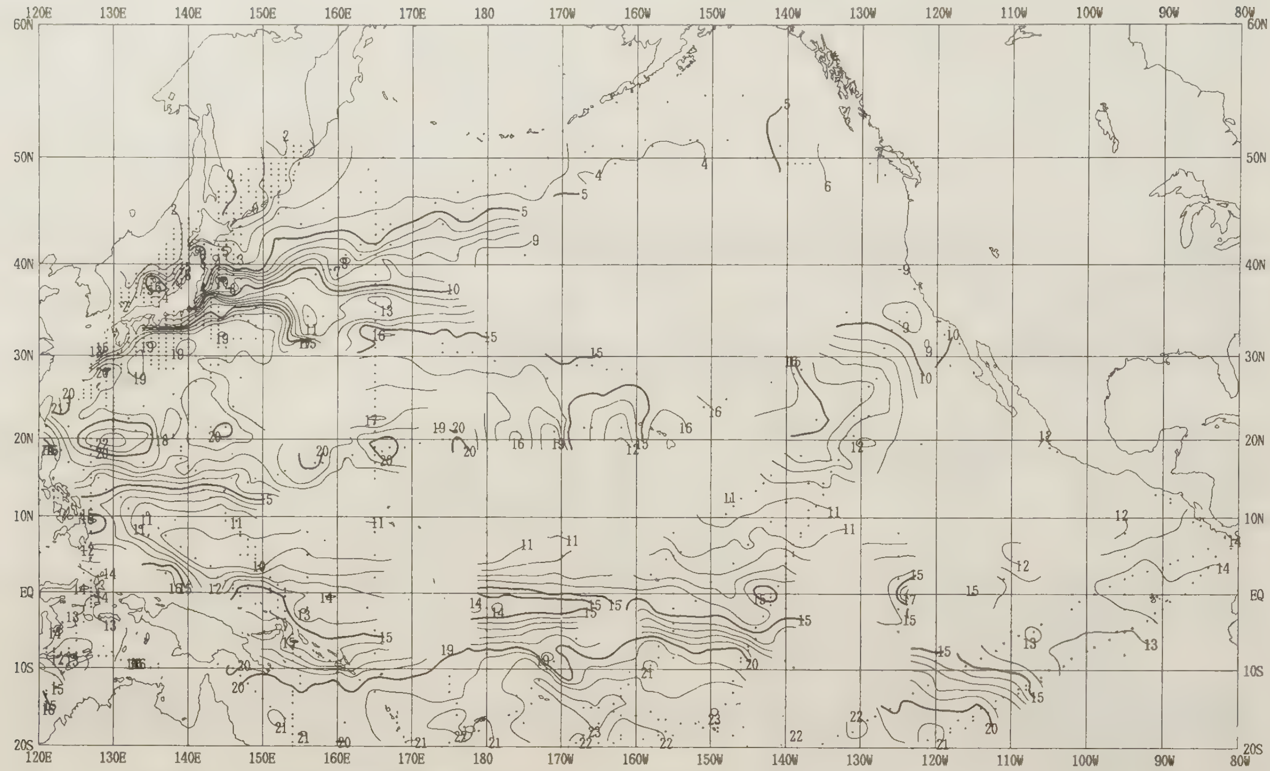
第16図　全球月平均海面水温図（上）及び偏差図（下）（1997年 9月）

Fig.16 Monthly mean sea surface temperature over the global ocean (top) and anomalies (bottom) for SEP 1997. Anomalies are computed from the JMA climatology (1961-1990). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).



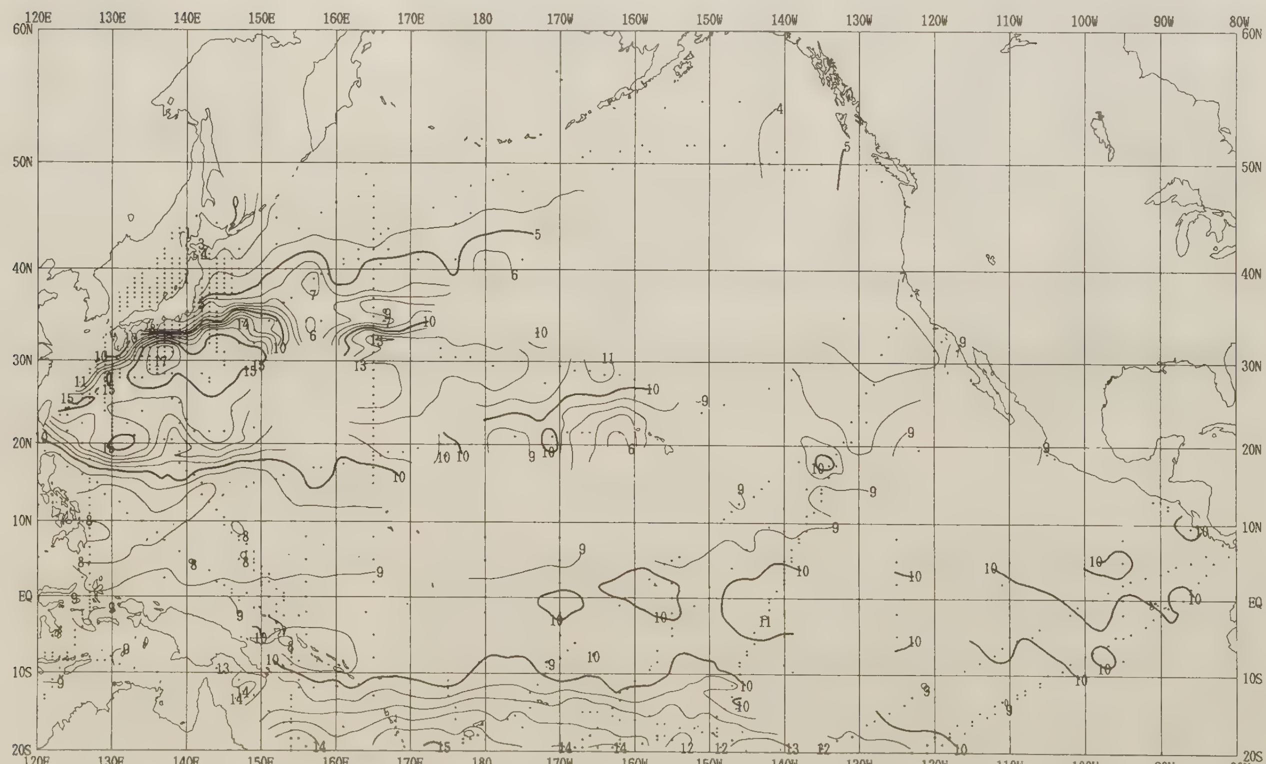
第17図　太平洋表層水温図(深さ100m) (1997年 9月)

Fig.17 Subsurface (100m) temperatures in the Pacific Ocean for SEP 1997. Contour interval is 1°C. Observation points are denoted by dots.



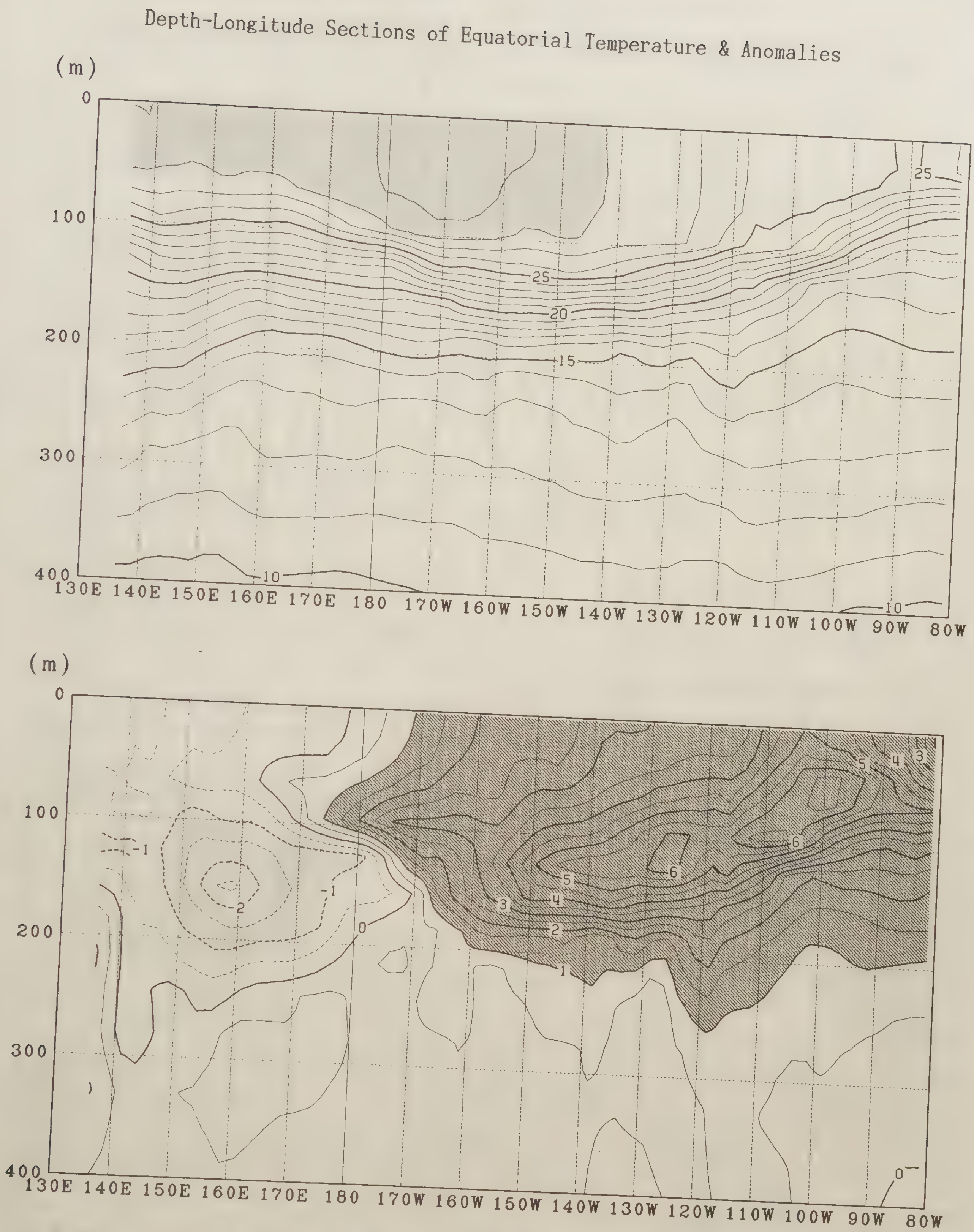
第18図　太平洋表層水温図(深さ200m)（1997年 9月）

Fig.18 Subsurface (200m) temperatures in the Pacific Ocean for SEP 1997.
Contour interval is 1°C. Observation points are denoted by dots.



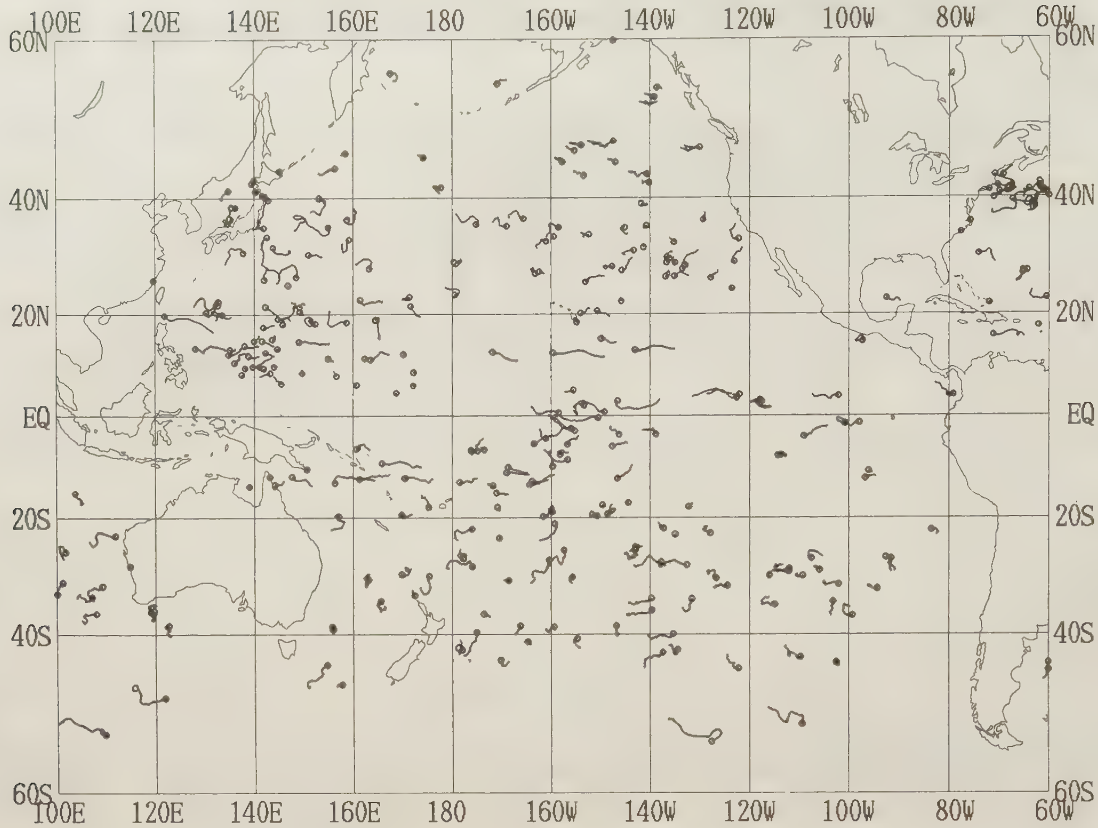
第19図　太平洋表層水温図(深さ400m)（1997年 9月）

Fig.19 Subsurface (400m) temperatures in the Pacific Ocean for SEP 1997.
Contour interval is 1°C. Observation points are denoted by dots.



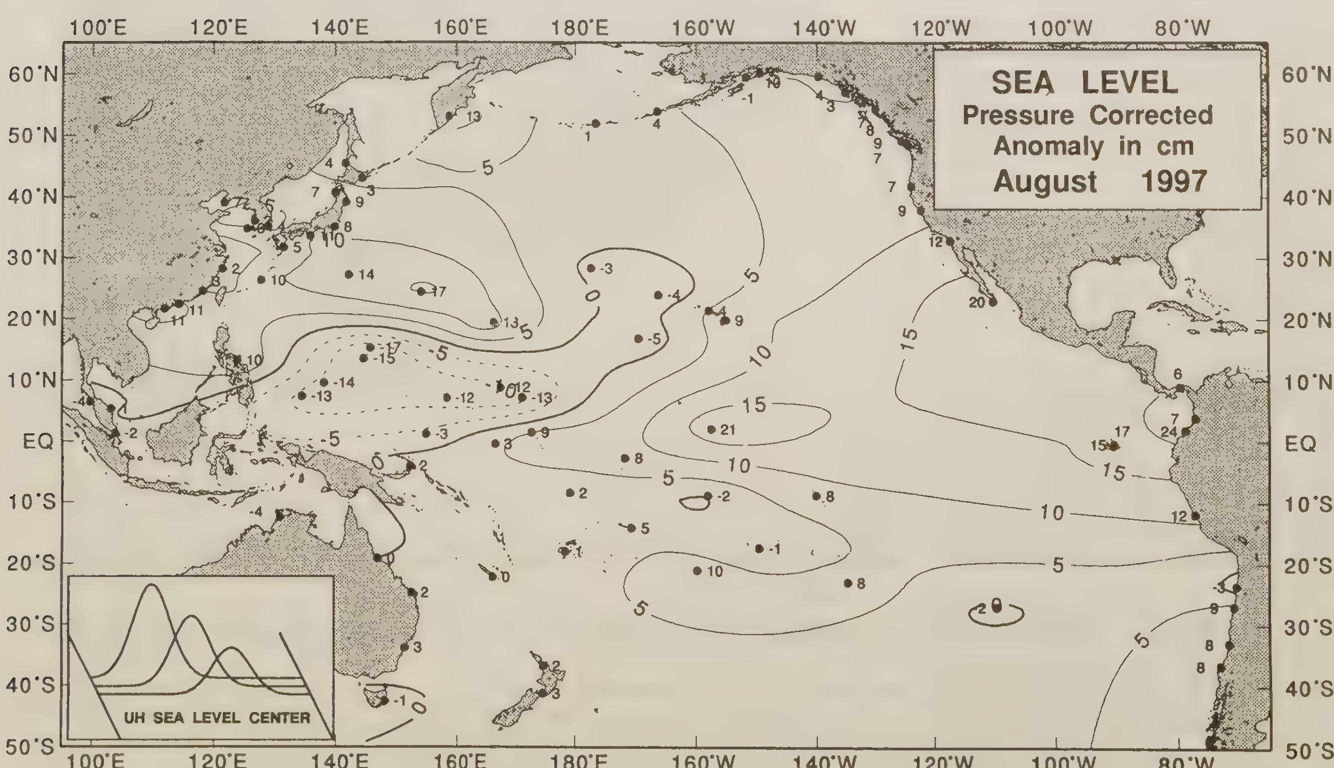
第20図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（1997年 9月）

Fig.20　Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for SEP 1997. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in the top panel are shaded. In the bottom panel, values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-1996 base period means.



第21図　太平洋ブイ流跡図(1997年 9月)

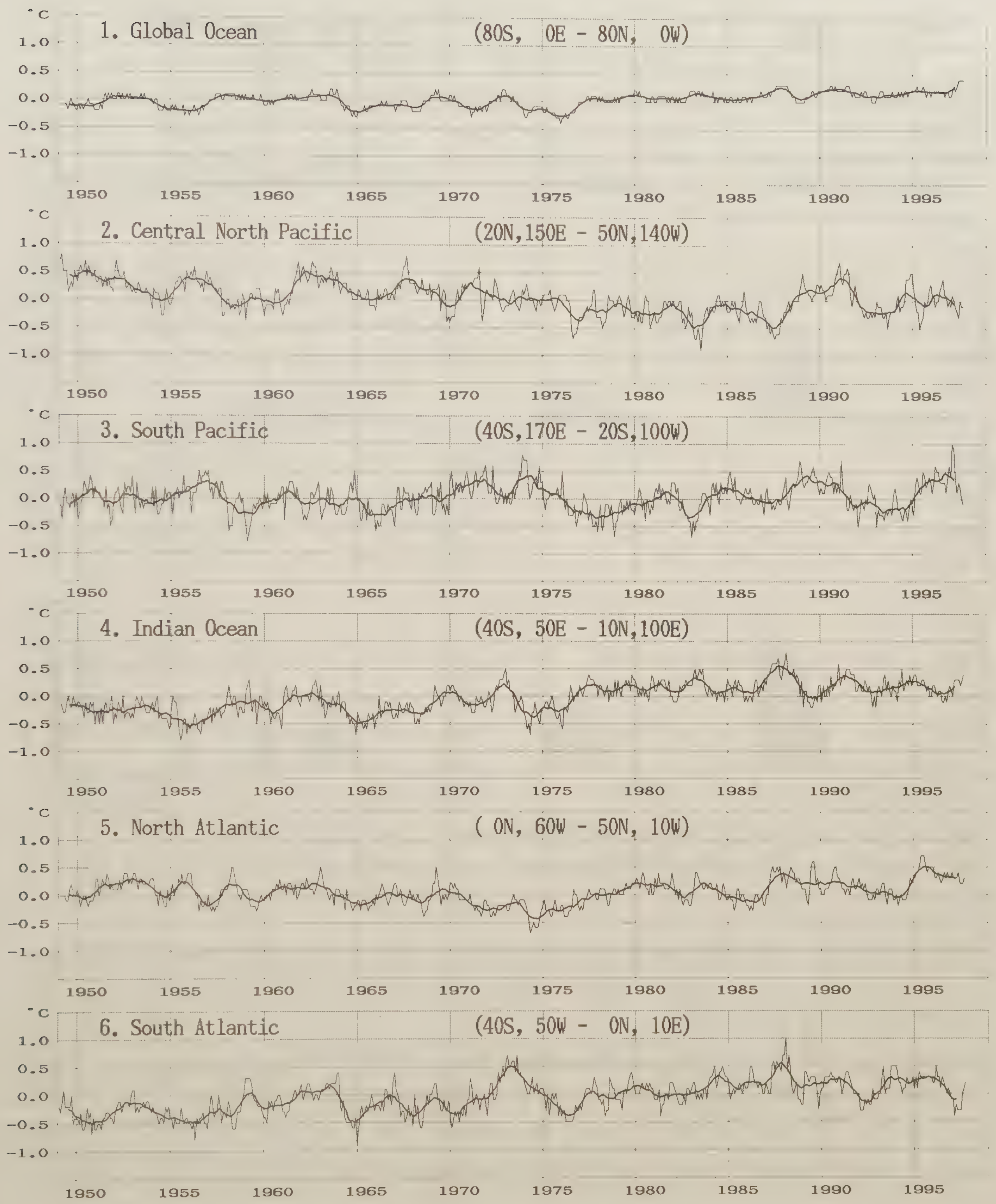
Fig.21　Movements of drifting buoys in the Pacific Ocean during SEP 1997.
Each track is for one buoy. Small circles represent last positions for the month.



第22図　太平洋海面水位偏差図 (1997年 8月)

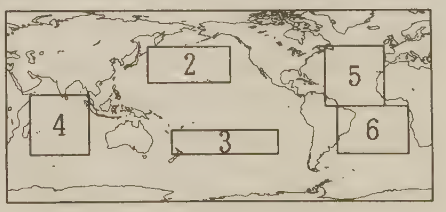
Fig.22　Monthly sea level anomalies for AUG 1997 obtained from mean sea level (1975-1995) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Dept. of Oceanography, Univ. of Hawaii.

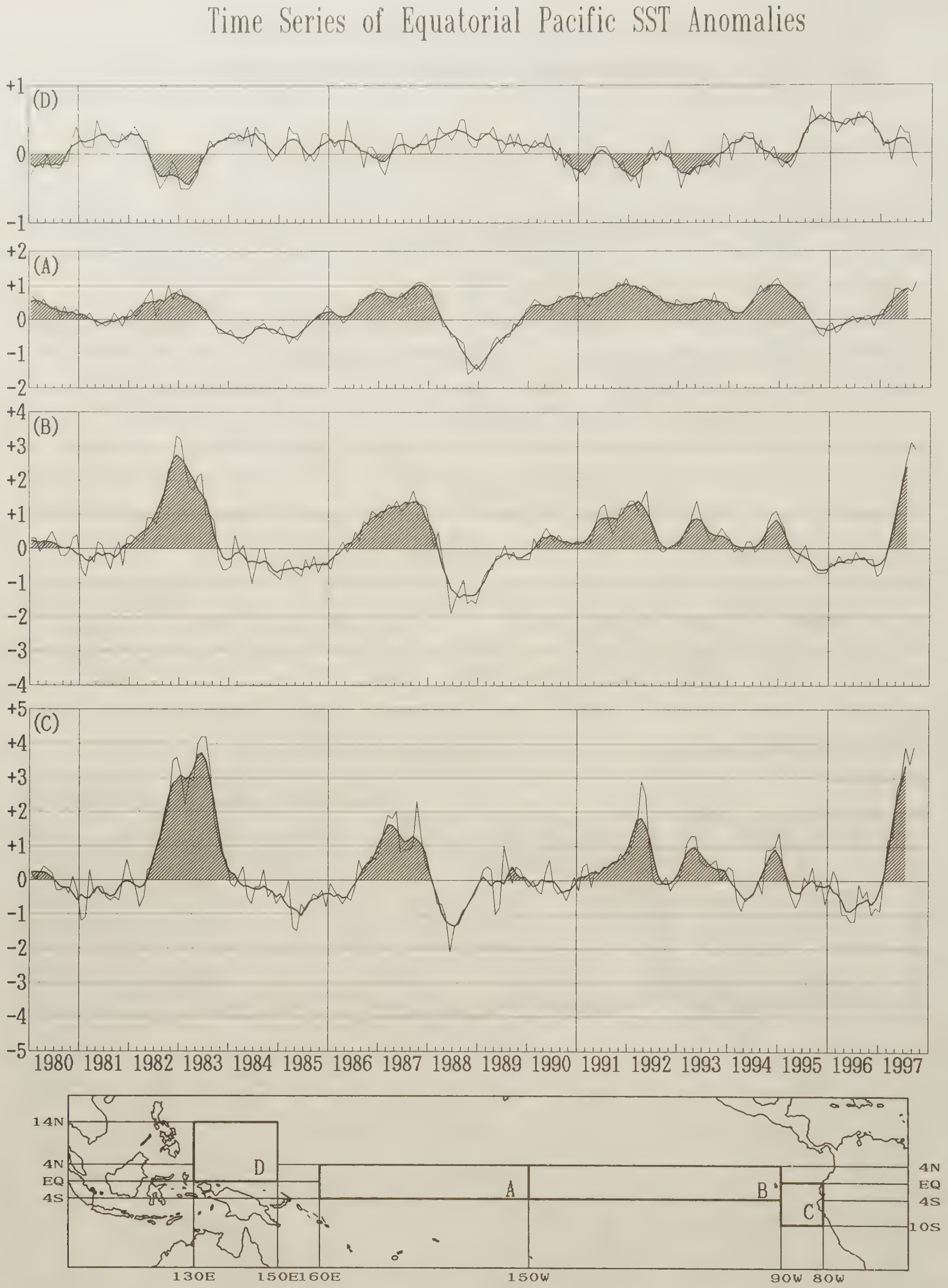
Long-term Variation of Monthly Mean SST Anomalies



第23図 海域平均海面水温偏差の長期変動

Fig.23 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1961-90). Thin lines show the monthly mean and thick lines their 13-month running means.





第24図　太平洋赤道域の海面水温偏差時系列図

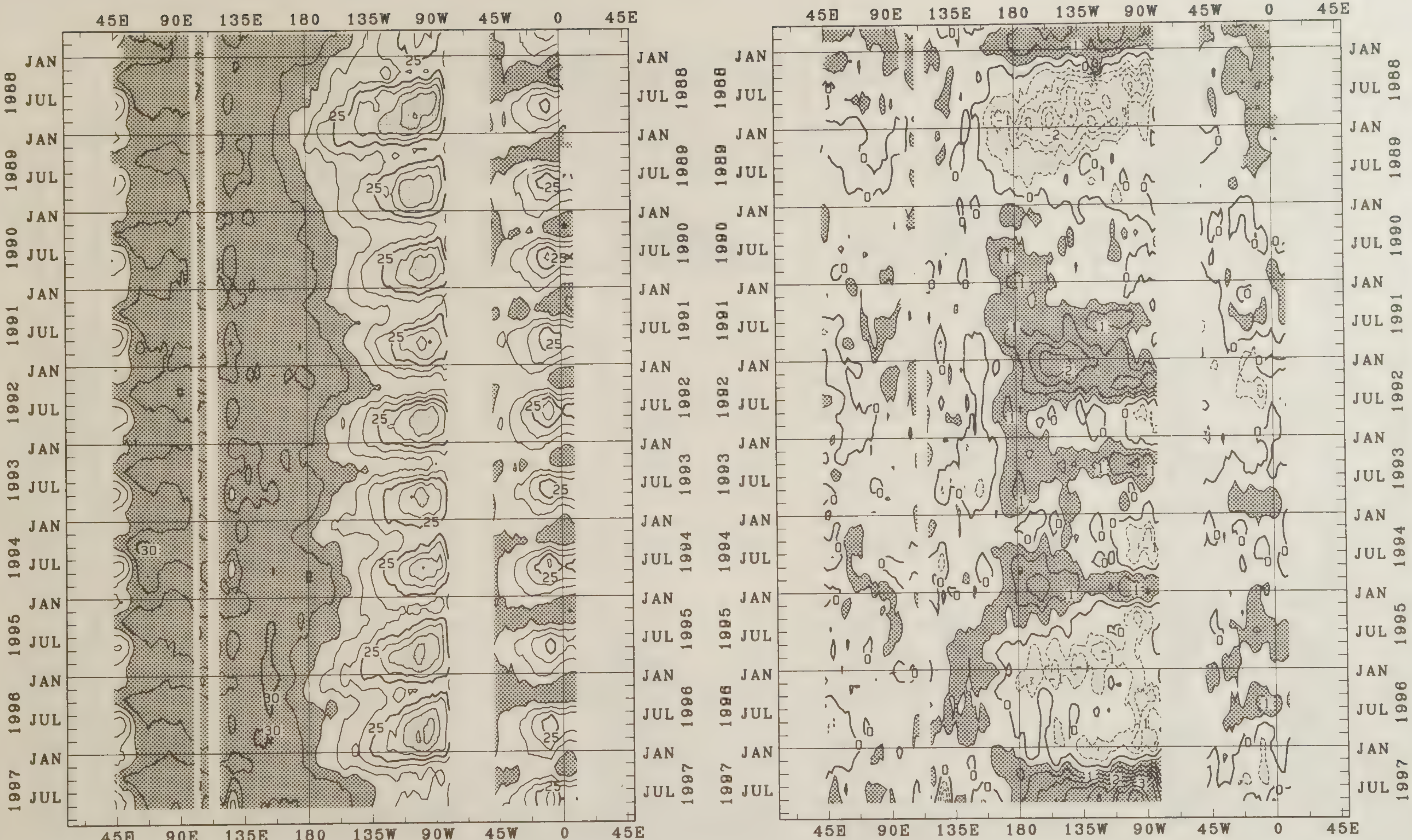
Fig.24 Time series of monthly mean SST anomalies (°C) in the equatorial Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1961-1990).

El Nino Monitoring Indices

MONTH	SEA SURFACE TEMPERATURE AND ANOMALY (°C) REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	SEA LEVEL PRESSURE ANOMALY (hPa) TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 95	28.3	-0.2	29.0	1.0	26.2	0.8	25.7	1.4	-0.4	-0.3	0.6
FEB 95	28.2	-0.1	28.9	0.9	26.8	0.6	26.1	0.4	-0.2	0.6	1.1
MAR 95	28.2	-0.2	28.8	0.7	26.9	0.0	25.8	-0.1	0.4	0.3	-0.5
APR 95	28.7	-0.1	28.8	0.6	26.9	-0.2	24.6	-0.5	-1.4	-1.6	-0.0
MAY 95	29.2	0.1	29.0	0.5	26.2	-0.4	23.1	-0.8	-1.0	-0.7	0.6
JUN 95	29.6	0.3	29.0	0.5	26.0	-0.1	22.2	-0.5	-0.1	0.3	0.4
JUL 95	29.5	0.3	28.7	0.2	25.3	0.1	21.7	0.1	0.4	0.4	-0.4
AUG 95	29.8	0.7	28.4	0.0	24.3	-0.3	20.5	-0.1	0.0	0.4	0.3
SEP 95	29.7	0.5	28.1	-0.2	24.0	-0.6	20.7	0.4	0.2	0.4	-0.0
OCT 95	29.8	0.5	28.0	-0.4	23.9	-0.7	20.4	-0.3	-0.3	-0.7	-0.5
NOV 95	29.7	0.5	27.9	-0.5	23.9	-0.7	21.5	0.0	0.1	0.1	-0.1
DEC 95	29.5	0.6	28.0	-0.2	24.2	-0.7	21.9	-0.7	-0.5	-0.9	0.0
JAN 96	29.0	0.5	27.9	-0.1	25.0	-0.4	24.1	-0.2	0.8	1.0	-0.7
FEB 96	28.6	0.3	27.6	-0.4	25.7	-0.5	26.0	0.3	0.1	-0.2	-0.5
MAR 96	28.8	0.4	27.8	-0.3	26.7	-0.2	25.9	0.0	0.7	1.0	-0.3
APR 96	29.3	0.5	28.1	-0.1	26.7	-0.4	24.1	-1.0	0.8	0.5	-0.5
MAY 96	29.6	0.5	28.5	0.0	26.2	-0.4	22.9	-1.0	0.3	1.2	1.2
JUN 96	29.7	0.4	28.6	0.1	25.7	-0.4	21.5	-1.2	1.4	1.6	-0.2
JUL 96	29.8	0.6	28.4	-0.1	25.1	-0.1	20.4	-1.2	0.7	0.6	-0.6
AUG 96	29.6	0.5	28.4	0.0	24.3	-0.3	20.5	-0.1	0.4	0.4	-0.3
SEP 96	29.8	0.6	28.4	0.1	24.3	-0.3	19.8	-0.5	0.5	-0.7	-1.7
OCT 96	29.9	0.6	28.5	0.1	24.3	-0.3	20.4	-0.3	0.4	-0.1	-0.8
NOV 96	29.5	0.3	28.2	-0.2	24.3	-0.3	20.5	-1.0	-0.0	-0.5	-0.5
DEC 96	29.2	0.3	28.3	0.1	24.1	-0.8	21.8	-0.8	0.8	-0.3	-1.9
JAN 97	28.6	0.1	28.3	0.3	24.7	-0.7	23.4	-0.9	0.3	1.7	0.9
FEB 97	28.5	0.2	28.2	0.2	25.9	-0.3	25.9	0.2	1.2	1.0	-1.9
MAR 97	28.3	-0.1	28.4	0.3	27.0	0.1	27.1	1.2	-0.6	-0.5	0.9
APR 97	29.0	0.2	29.1	0.9	27.5	0.4	26.3	1.2	-1.1	0.4	2.3
MAY 97	29.5	0.4	29.4	0.9	27.9	1.3	26.5	2.6	-2.5	-2.1	0.9
JUN 97	29.6	0.3	29.3	0.8	28.1	2.0	25.7	3.0	-2.3	-0.8	2.1
JUL 97	29.5	0.3	29.4	0.9	27.8	2.6	25.5	3.9	-0.8	-0.1	1.2
AUG 97	29.0	-0.1	29.2	0.8	27.7	3.1	24.0	3.4	-2.0	-0.9	2.2
SEP 97	29.0	-0.2	29.4	1.1	27.5	2.9	24.2	3.9	-1.4	0.1	2.7

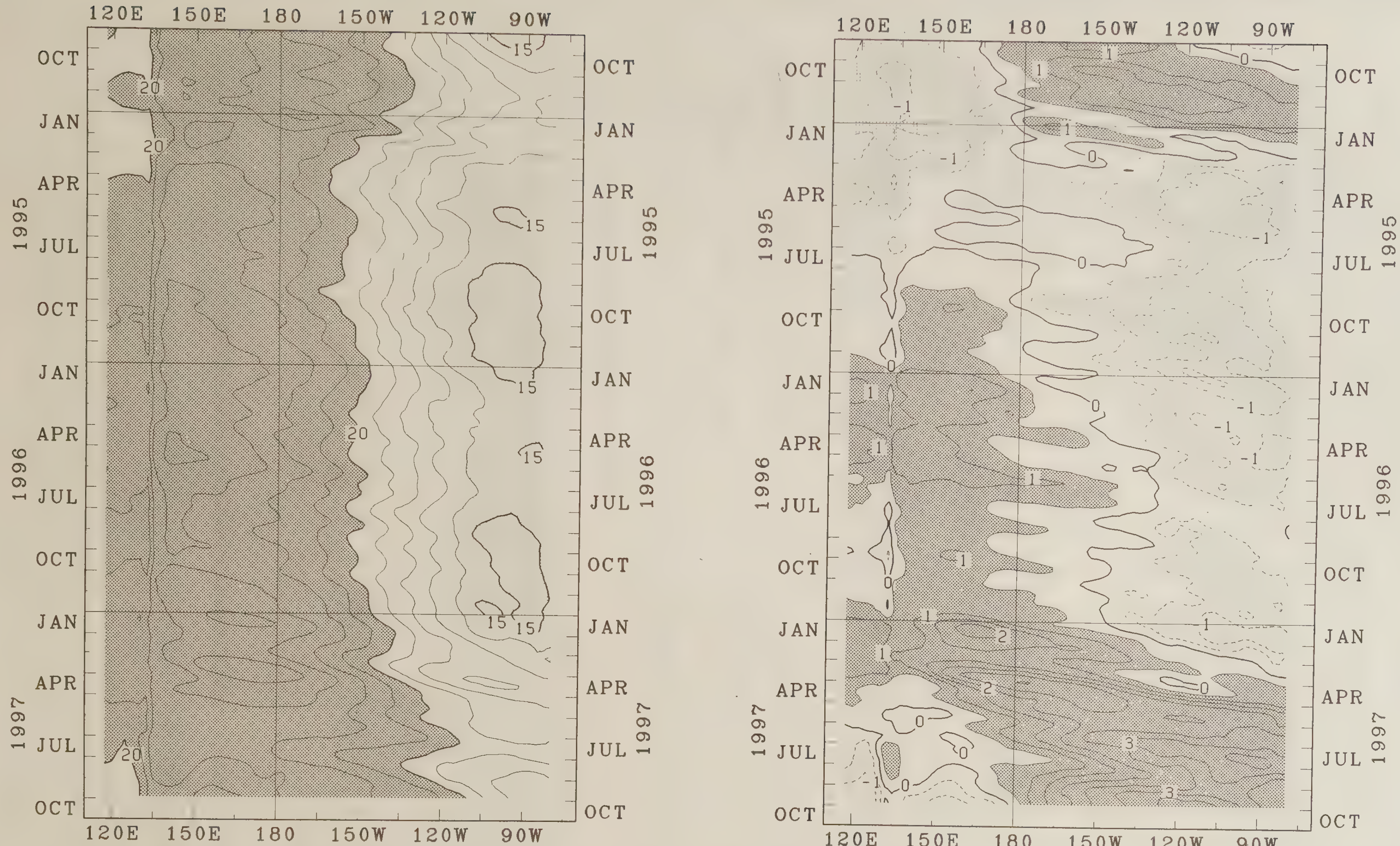
第1表　エルニーニョ監視指数

Table 1 El Nino Monitoring indices



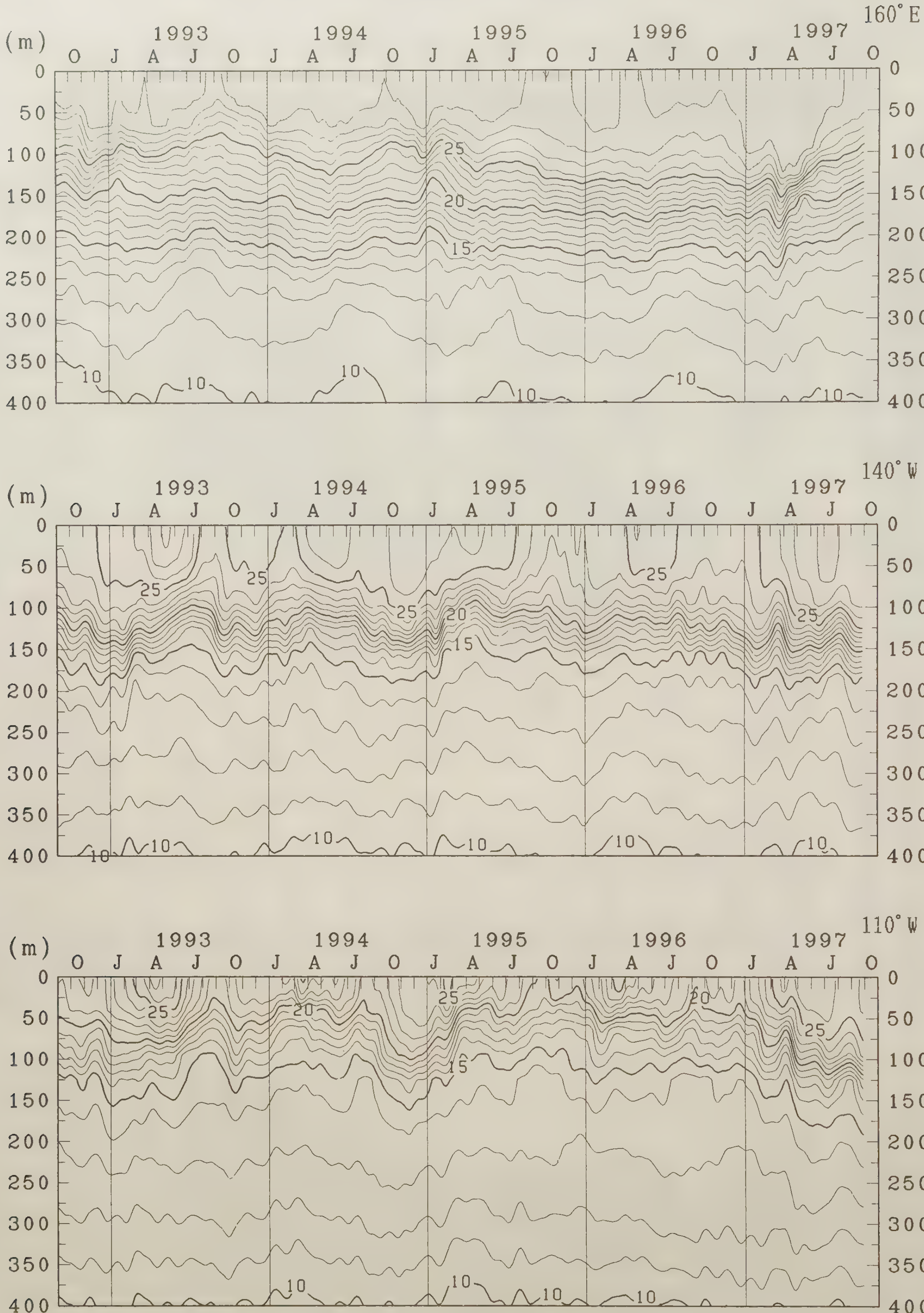
第 25 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

Fig.25 Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2 °N-2 °S) in the global ocean. Contour interval is 1 °C (left) and 0.5 °C (right). Values greater than 28 °C are shaded and values less than 23 °C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1961-1990 base period means.



第26図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

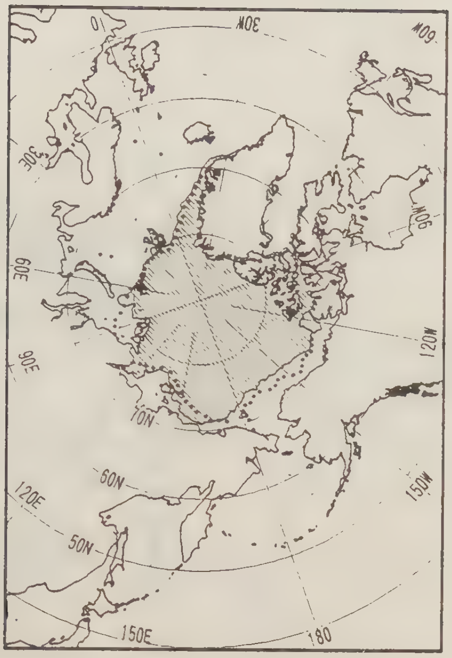
Fig.26 Time-longitude sections of ocean heat content in the upper 260m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C are shaded and values less than 16°C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-1996 base period means.



第27図　太平洋赤道域の表層水温の時間－深度断面図

（上：西部、中：中部、下：東部）

Fig.27 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.



第28-1図 北極域の海氷図（1997年 9月17日）

Fig.28-1 Sea ice chart in the Arctic on 17 Sept. 1997.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge (Averaged for the period from 1972 through 1990).

The data source is the National Ice Center (USA).



第28-2図 南極域の海氷図（1997年 9月18日）

Fig.28-2 Sea ice chart in the Antarctic on 18 Sept. 1997.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge (Averaged for the period from 1973 through 1990).

The data source is the National Ice Center (USA).

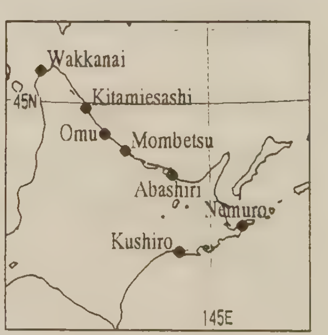
第28-1表 各地の海氷現象の極値表（1997年5月まで）

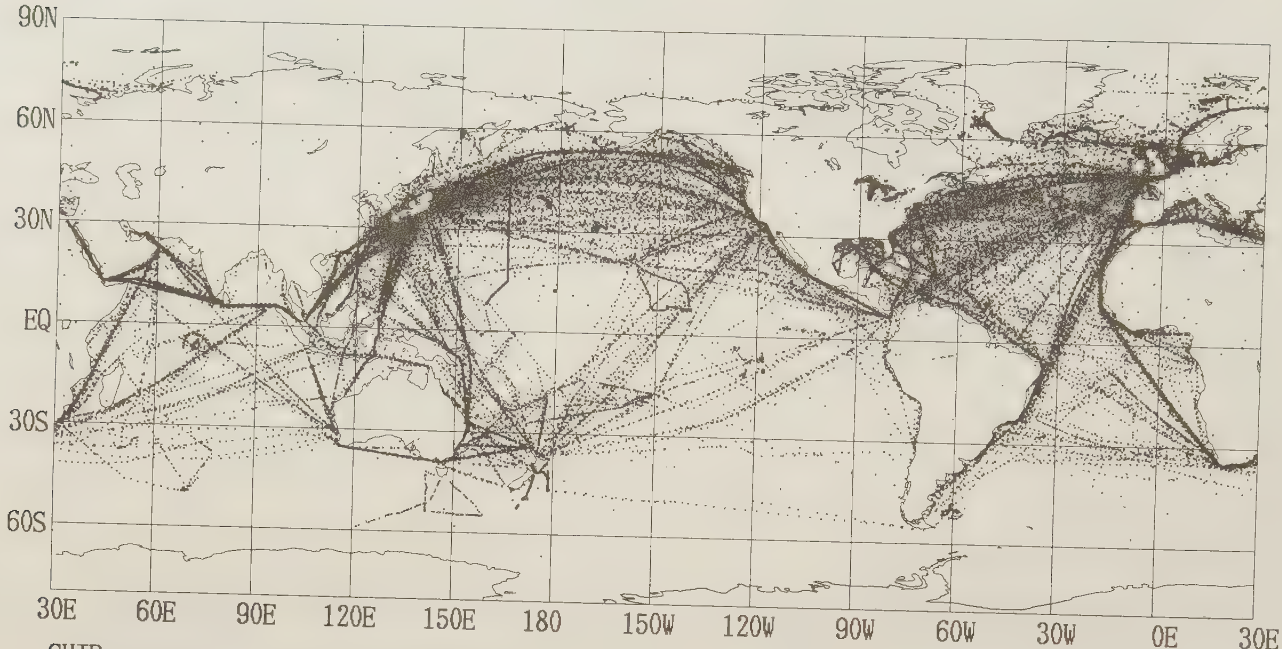
Table 28–1 Extremes of charactristic indices for drift ice conditions as of May in 1997.

Station	First date ice in sight		Last date in sight		Numbers of days in sight	
	Earliest	Latest	Earliest	Latest	Maximum	Minimum
WAKKANAI	Jan. 16, 1961	Mar. 25, 1952	Jan. 24, 1959	Apr. 09, 1965	54 (1984/85)	0 (1996/97)
KITAMIESASHI	Jan. 01, 1953	Mar. 21, 1989	Feb. 27, 1992	May 04, 1993	81 (1977/78)	8 (1991/92)
OMU	Dec. 31, 1945	Mar. 19, 1989	Mar. 07, 1951	May 06, 1993	94 (1980/81)	13 (1988/89)
MOMBETSU	Jan. 03, 1967	Feb. 14, 1989	Feb. 19, 1976	May 08, 1993	100 (1980/81)	10 (1988/89)
ABASHIRI	Dec. 27, 1952	Feb. 10, 1993	Mar. 19, 1991	May 12, 1965	114 (1965/66)	18 (1988/89)
NEMURO	Jan. 10, 1951	Mar. 20, 1949	Feb. 13, 1989	May 02, 1979	70 (1985/86)	0 (1990/91)
KUSHIRO	Feb. 01, 1960	Mar. 21, 1985	Feb. 15, 1967	Apr. 23, 1984	no record	no record

Note 1: The first/last dates have been recorded since 1946 except Mombetsu (since 1954).

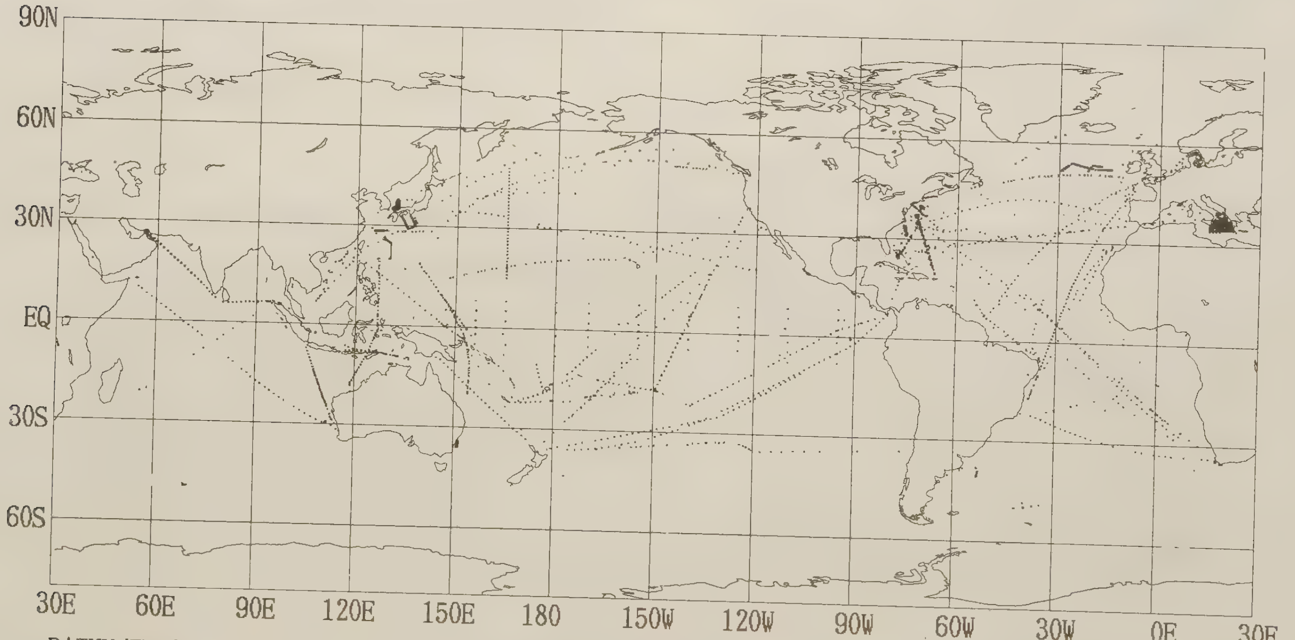
Notes 2: The number of days in sight have been recorded since 1956.





SHIP messages

Total data:119345

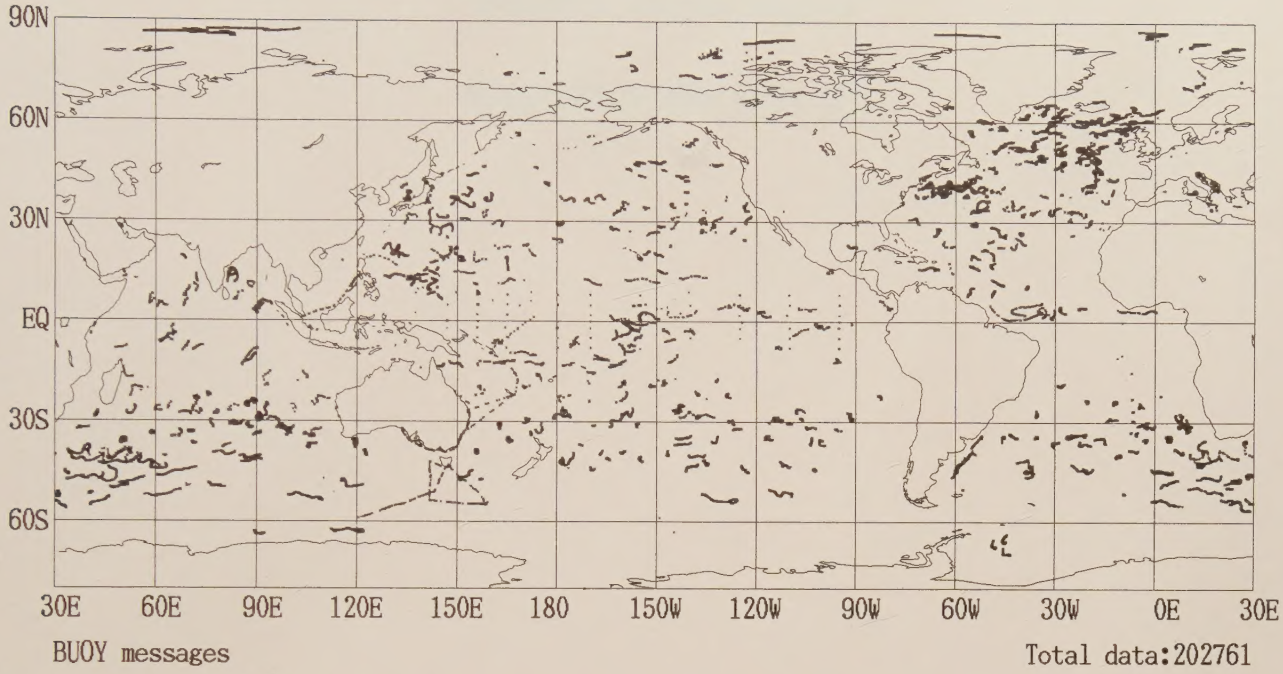


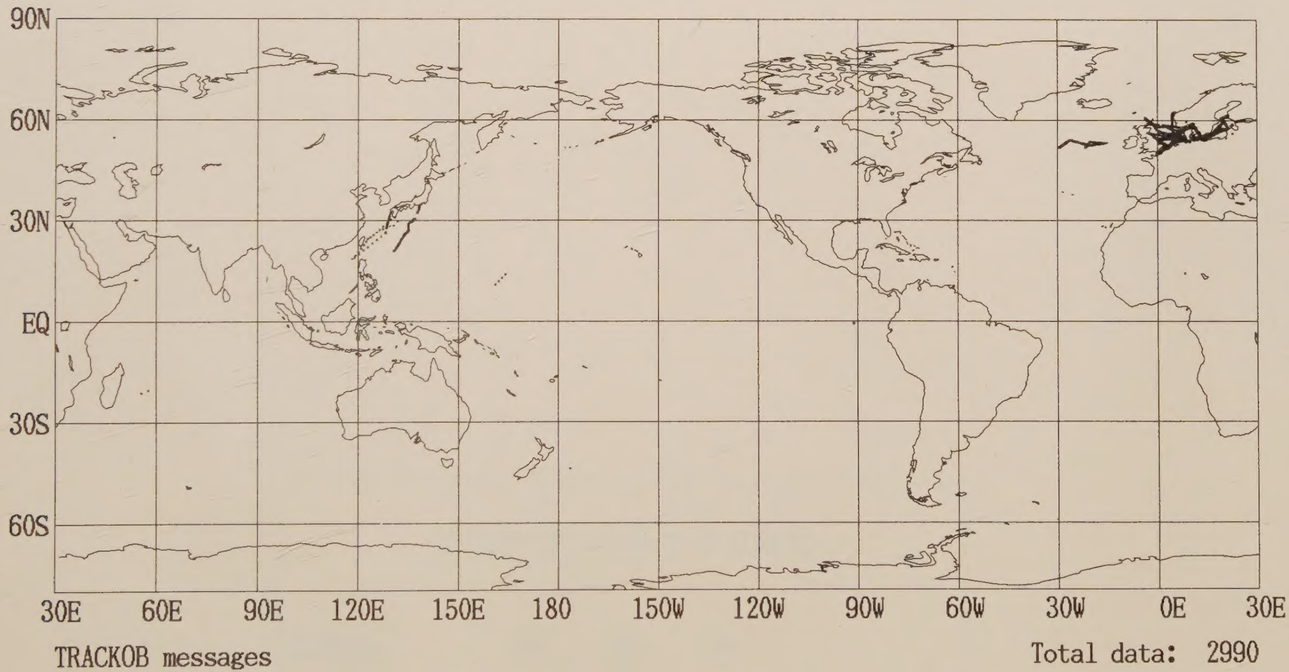
BATHY/TESAC messages

Total data: 4905

第29-1図　測点分布図(1997年 9月)

Fig.29-1 Geographical distribution of SHIP messages (SST data, top) and BATHY/TESAC messages (subsurface temperature data, bottom) for SEP 1997.





第29-2図　測点分布図(1997年 9月)

Fig.29-2 Geographical distribution of BUOY messages (buoy drift and SST data, top) and TRACKOB messages (ship drift and SST data, bottom) for SEP 1997.

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